IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

MICROSOFT CORPORATION,   )
)
                           Plaintiff,   )
)
            v.   )   C.A. No. 07-090 (SLR)
)
ALCATEL-LUCENT ENTERPRISE and   )
GENESYS TELECOMMUNICATIONS)   REDACTED VERSION
LABORATORIES, INC.,   )
)
                           Defendants.   )

APPENDIX TO DEFENDANTS' ANSWERING CLAIM CONSTRUCTION BRIEF

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CERTIFICATE OF SERVICE

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EXHIBIT 1

TO

RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS

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(12) United States Patent
O'Neal et al.

(10) Patent No.: **US 6,263,064 B1**
(45) Date of Patent: ***Jul. 17, 2001**

(54) **CENTRALIZED COMMUNICATION CONTROL CENTER FOR VISUALLY AND AUDIBLY UPDATING COMMUNICATION OPTIONS ASSOCIATED WITH COMMUNICATION SERVICES OF A UNIFIED MESSAGING SYSTEM AND METHODS THEREFOR**

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(73) Assignee: **International ThinkLink Corporation**, San Francisco, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/239,585**

(22) Filed: **Jan. 29, 1999**

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(58) Field of Search 379/88.12, 88.13, 379/88.14, 88.15, 88.16, 88.17, 88.22, 88.23, 88.24, 88.25, 88.27, 88.28, 90.01, 201, 210, 211, 212, 230; 370/351, 352, 353, 354

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(57)   **ABSTRACT**

A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal is disclosed. The computer implemented control center includes a subscriber communication profile database having therein an account pertaining to the subscriber. The account includes the communication options for the subscriber. The communication options include parameters associated with individual ones of the communication services and routings among the communication services. There is also included a computer server coupled to exchange data with the subscriber communication profile database. The computer server is configured to visually display the communication options on the display terminal when the subscriber employs the display terminal to access the computer-implemented control center through the data-centric network. The computer server is also configured to receive from the subscriber via the display terminal a first change to the communication options and to update the first change to the account in the subscriber communication profile database. There is also included a telephony server coupled to exchange data with the communication profile database. The telephony server is configured to audibly represent the communication options to the telephone when the subscriber employs the telephone to access the computer-implemented control center. The telephony server is also configured to receive from the subscriber via the telephone a second change to the communication options and to update the second change to the account in the subscriber communication profile database.

20 Claims, 6 Drawing Sheets
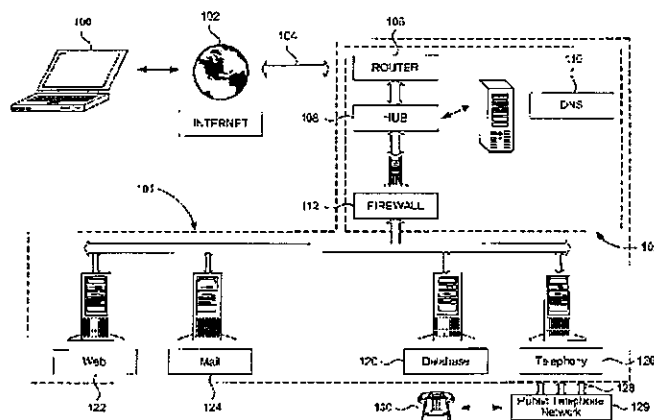
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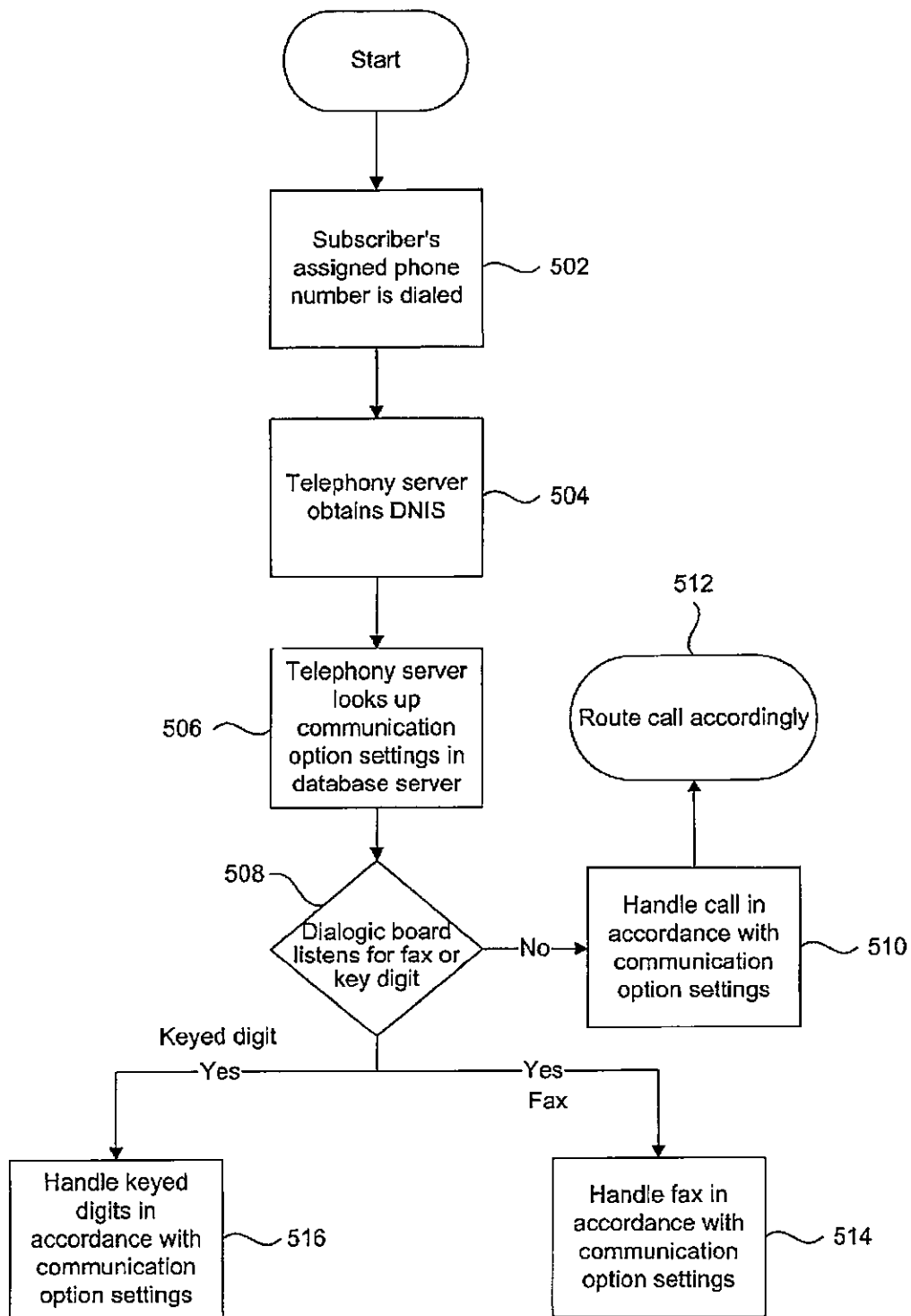

FIG. 1

FIG. 2

FIG. 3

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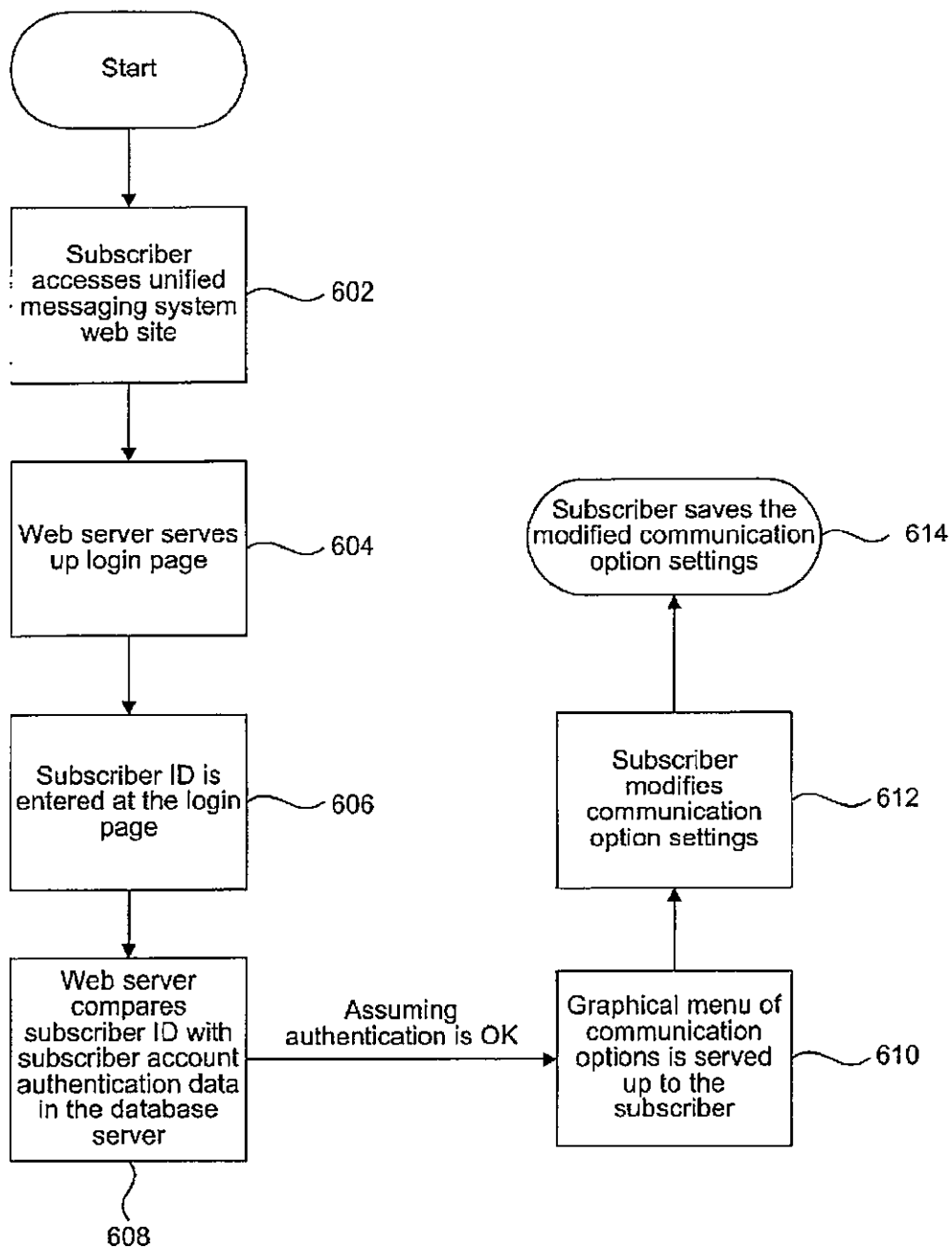

FIG. 4

FIG. 5

FIG. 6

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CENTRALIZED COMMUNICATION CONTROL CENTER FOR VISUALLY AND AUDIBLY UPDATING COMMUNICATION OPTIONS ASSOCIATED WITH COMMUNICATION SERVICES OF A UNIFIED MESSAGING SYSTEM AND METHODS THEREFOR

RELATED APPLICATIONS

The following commonly-owned, co-pending patent applications are related and are incorporated herein by reference.

Ser. No. 09/239,560, filed Jan. 29, 1999, entitled "INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM DISTRIBUTED OVER A LARGE GEOGRAPHICAL AREA";

Ser. No. 09/240,367, filed Jan. 29, 1999, entitled "A SYSTEM AND METHOD FOR PROVIDING UNIFIED MESSAGING TO A USER WITH A THIN WEB BROWSER";

Ser. No. 09/239,584, filed Jan. 29, 1999, entitled "COMPUTER-IMPLEMENTED CALL FORWARDING OPTIONS AND METHODS THEREFOR IN A UNIFIED MESSAGING SYSTEM";

Ser. No. 09/240,893, filed Jan. 29, 1999, entitled "INTERACTIVE BILLING SYSTEM UTILIZING A THIN WEB CLIENT INTERFACE";

Ser. No. 09/240,368, filed Jan. 29, 1999, entitled "A SYSTEM AND METHOD TO MANAGE PHONE SOURCED MESSAGES";

Ser. No. 09/240,434, filed Jan. 29, 1999, entitled "METHOD AND APPARATUS FOR NETWORK INDEPENDENT INITIATION OF TELEPHONY";

Ser. No. 09/240,435, filed Jan. 29, 1999, entitled "APPARATUS AND METHOD FOR DEVICE INDEPENDENT MESSAGING NOTIFICATION";

Ser. No. 09/240,436, filed Jan. 29, 1999, entitled "APPARATUS AND METHOD FOR CHANNEL-TRANSPARENT MULTIMEDIA BROADCAST MESSAGING";

Ser. No. 09/240,589, filed Jan. 29, 1999, entitled "VOICE ACCESS THROUGH A DATA-CENTRIC NETWORK TO AN INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM".

BACKGROUND OF THE INVENTION

The present invention relates to communication services available via a data-centric network (i.e., a network that carries digital data) and a telephony-centric network (i.e., a network that carries telephony information such as voice, fax, pager, and the like). More particularly, the present invention relates to a centralized facility and methods therefor that allow a subscriber of various communication services to review and customize his communication options, in an interactive and simplified manner, via either the data-centric network or the telephony-centric network.

Both the data-centric network (e.g., a distributed computer network) and the telephony-centric network (e.g., public telephone network) have existed for some time. Broadly speaking, the data-centric network (such as the Internet) may be thought of as a global computer network that connects millions of computer terminals all over the world in such a way that digitized information can be exchanged irrespective of the different hardware and soft-

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ware platforms that may be utilized to gain access to the data-centric network. People and businesses around the world use the data-centric network to retrieve information, communicate and conduct business globally, and access a vast array of services and resources on-line. In a similar manner, the telephony-centric network (whether wired or wireless) may also be thought of as another global network that connects the millions of telephony devices (such as voice-oriented telephones, pagers, facsimile machines, voice mail boxes, and the like) together in such a way that a user at one of the telephony devices can readily transmit information to other telephony devices irrespective of geographic boundaries.

In the past, these two networks existed as separate domains. This is because the widely accessible data-centric network is a fairly recent phenomenon. For decades, the only network that has been available to the masses is the analog telephony-centric network, starting with the telegraph network of the nineteenth century. However, as more and more of the services traditionally offered through the telephony-centric network are being offered in a digital format by the data-centric network, the distinction between the data-centric network and the telephony-centric network begins to blur. Irrespective of whether these two networks exist as separate networks physically or conceptually going forward, the legacies of their separate existence can be seen in the various different communication services and communication devices that currently exist.

By way of example, there exist many different communication devices and services available today to allow a person to communicate to another person, e.g., telephones, facsimile machines, electronic mail (e-mail), pagers, voice mail, and the like. Generally speaking, a telephone is a communication device employed to transmit and receive speech and other sounds. A facsimile machine is a communication device to transmit and receive graphical data. A pager is a highly portable device that allows its user to receive data, and in some cases transmit limited data to a pager service provider. A voice mail box is essentially a service that allows one person to temporarily store telephone messages for retrieval by another. E-mail services allow e-mail users to transmit and receive data from computer terminals connected to the data-centric network. All these devices and services are well known in the art and will not be elaborated further for the sake of brevity.

Currently, these communication services are viewed, both by the service providers who create and maintain the network infrastructure and the subscribers who employ the devices and networks for communication, as separate services. This is due, partly but not entirely, to past government deregulation efforts and gradual technological evolution that have given rise to different service providers, all competing to provide the communication services to individual consumers. Thus, it is not unusual for a consumer to have an e-mail account with one service provider, a telephone account with another service provider and a pager account with yet another service provider. Even if the different services are contracted through a single service provider, the dual existence of the data-centric network and the telephony-centric network, as well as existing billing and account management infrastructures, often force the service provider to manage each of these services as a separate account.

One of the consequences of having different accounts for different services is the proliferation of telephone numbers, facsimile numbers, and pager numbers that a typical consumer must deal with. Thus, it is not at all unusual for a

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consumer to have a home telephone number, a work telephone number, one or more cellular telephone numbers, a pager number, and a facsimile number, with each of these numbers being assigned to a different communication device. Not only are these various numbers difficult to remember for the consumer, they are confusing to others.

A more serious consequence is the burden on the consumer who needs to manage the communication options associated with the different services (which are now assigned to different physical devices and managed as different accounts) to ensure that incoming and outgoing messages are properly handled. By way of example, a person who travels may wish to forward voice calls made to his home and office telephone numbers to his cellular telephone or hotel telephone. Likewise, he may wish to divert facsimiles sent to his office facsimile machine to a facsimile machine that is more local. While in a meeting, however, he may wish to temporarily divert the voice calls to his voice mail box or forward it to another person for handling. To stay in touch, these communication options may need to be changed many times during the course of the day and/or each time he arrives at a new location.

To accomplish the above, the person in the above example currently needs to first ascertain the current communication option settings associated with the various services that he uses. Unless he is diligent in noting and/or remembering the recent changes in the communication option settings, he may need to call each of the service providers to find out what the current communication option settings are. Assuming that he knows the current communication option settings and such calls need not be made, the user must still access each communication device and/or contact each service provider to reroute the incoming and outgoing messages.

By way of example, some facsimile machines currently allow the user to forward the incoming facsimile to another facsimile machine by entering a particular combination of the forwarding number and predefined codes on the facsimile machine keypad. Likewise, many telephone systems require the user to physically enter the forwarding telephone number and predefined codes on the keypad of the telephone from which forwarding originates. However, this requires the user to be physically present at the facsimile machine or telephone from which forwarding originates. If he owns one of these telephones or facsimile machines and is on the road, such forwarding would not be possible absent help from another person who has such physical access.

The fact that each communication service is treated as a different account also requires the user in the example above to access each account and/or service provider to accomplish the changes. Thus, multiple calls may need to be made to change the communication option settings associated with the different communication services. Even with automated response systems in place to handle such changes, these calls take time and can aggravate even the most patient users, especially if multiple calls need to be made to the multiple service providers each time he moves from one location to another. As can be appreciated by those skilled in the art, such approach is at best time consuming and unwieldy.

More typically, a busy user would just not bother changing the communication options associated with the various communication devices that he owns. He would rather suffer the possibility of missing out on some messages than constantly contacting the different service providers and making changes on individual services. In this case, the communication services that he owns are not employed to their fullest potential.

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In view of the forgoing there are desired improved techniques for allowing a user of communication services to review and customize the communication options associated with these services in a simplified and convenient manner.

SUMMARY OF THE INVENTION

The invention relates, in one embodiment, to a computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the plurality of communication services. The communication options include parameters associated with individual ones of the plurality of the communication services and routings among the plurality of communication services. The plurality of communication services comprising a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network. The communication options is accessible via display terminals coupled to the data-centric network and via telephones coupled to the telephony-centric network. The computer-implemented control center includes a subscriber communication profile database. The subscriber communication profile database has therein an account pertaining to the subscriber. The account includes the communication options for the subscriber.

There is also included a computer server coupled to exchange data with the subscriber communication profile database. The computer server is configured to visually display the communication options on one of the display terminals when the subscriber employs the one of the display terminals to access the computer-implemented control center. The computer server also is configured to receive from the subscriber via the one of the display terminals a first change to the communication options and to update the first change to the account in the subscriber communication profile database.

There is further included a telephony server coupled to exchange data with the communication profile database. The telephony server is configured to audibly represent the communication options to one of the telephones when the subscriber employs the one of the telephones to access the computer-implemented control center. The telephony server also is configured to receive from the subscriber via the one of the telephones a second change to the communication options and to update the second change to the account in the subscriber communication profile database.

The invention relates, in another embodiment, to a computer-implemented method for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the plurality of communication services. The communication options include parameters associated with individual ones of the plurality of the communication services and routings among the plurality of communication services. The plurality of communication services includes a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network. The communication options are accessible via display terminals coupled to the data-centric network and via telephones coupled to the telephony-centric network. The method includes providing a subscriber communication profile database. The subscriber communication profile database has therein an account pertaining to the subscriber. The account includes the communication options for the subscriber.

There is also included visually displaying the communication options on one of the display terminals, using a

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computer server coupled to exchange data with the subscriber communication profile database, when the subscriber employs the one of the display terminals to access the computer-implemented control center. There is further included receiving from the subscriber via the one of the display terminals at the computer server a first change to the communication options. The first change to the communication options pertains to either the voice telephone service or the e-mail service. Additionally, there is included updating the first change to the account in the subscriber communication profile database, thereby resulting in a first updated subscriber communication profile database, wherein subsequent messages to the subscriber at the unified messaging system, including the voice telephone service, are handled in accordance with the first updated subscriber communication profile database.

These and other features of the present invention will be described in more detail below in the detailed description of the invention and in conjunction with the following figures.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings and in which like reference numerals refer to similar elements and in which:

FIG. 1 depicts, in one embodiment, the general overview of the unified message system.

FIG. 2 illustrates, in one embodiment, how the 48 telephone lines provided per T1 link may be divided among the sub-servers of the telephony server.

FIG. 3, in one embodiment, the user interface portion of the computer-implemented control center, representing the visual display panel for displaying the communication options pertaining to a particular subscriber on a computer display screen.

FIG. 4 shows the communication options in greater detail, in accordance with one embodiment of the present invention.

FIG. 5 is a flow diagram depicting, in one embodiment, the relevant steps of a computer-implemented process for handling access to the unified messaging system through the telephony-centric network by a subscribing or a non-subscribing caller.

FIG. 6 is a flow diagram depicting, in one embodiment, the relevant steps of a computer implemented process for handling access to the unified messaging system through a computer network by a subscriber.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention will now be described in detail with reference to a few preferred embodiments thereof and as illustrated in the accompanying drawings. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be obvious, however, to one skilled in the art, that the present invention may be practiced without some or all of these specific details. In other instances, well known process steps have not been described in detail in order not to unnecessarily obscure the present invention.

In accordance with one aspect of the present invention, there is provided a computer-implemented control center which is coupled to the data-centric network and the telephony-centric network, and which allows a user to access, using either a telephone or a computer, the commu-

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nication options associated with the various communication services of a unified messaging service. Unlike the prior art approach which requires the user to contact individual service providers/accounts and/or to access individual communication devices to review and change the communication options associated therewith, the computer-implemented control center allows the communication options associated with the various communication services to be accessed substantially all at once. That is, the computer-implemented control center provides a single central facility through which the communication option settings associated with the different communication services may be reviewed and/or modified.

In accordance with one aspect of the present invention, the communication options, which include the options associated with individual communication services as well as routings among the different individual communication services, are accessible using either a computer network interface (e.g., a web page) or a telephone network interface (e.g., via a telephone). The communication option settings themselves do not reside with individual communication devices or require access through a particular communication device (such as with the assigned facsimile machines or telephones discussed earlier). Rather, the communication option settings are centralized within the universally accessible computer-implemented control center and can be utilized to properly control the communication options associated with the various services and to facilitate control of the routings therebetween. More importantly, they can be reviewed and modified by a properly authenticated subscriber of the unified messaging service through any suitable computer or telephone irrespective of the geographic location from which the accessing and/or modifications are made.

In the aforementioned co-pending patent applications entitled "INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM DISTRIBUTED OVER A LARGE GEOGRAPHICAL AREA" (Ser. No. 09/239,560 filed Jan. 29, 1999), and "A SYSTEM AND METHOD FOR PROVIDING UNIFIED MESSAGING TO A USER WITH A THIN WEB BROWSER (Ser No. 09/240,367, filed Jan. 29, 1999), which are all incorporated herein by reference, some inventive unified messaging services and their various features are disclosed. Although the present invention may be implemented on any unified messaging system, reference may be made to the above-mentioned co-pending patent applications for details pertaining to preferable unified messaging systems on which the present invention may be implemented.

In general terms, a unified messaging system benefits a user by integrating various communication services, which up to now have existed as separate services. The integration facilitates simplified management, billing, and more importantly the routing of messages among the various services. With a unified messaging service, a user may, for example, specify that an incoming facsimile be forwarded to a computer for viewing or to a printer for printing, listen to e-mail messages through a telephone, receive pager notification when a facsimile is received, or the like. Within limits, a unified messaging system allows messages to be received, stored, retrieved, and/or forwarded (in the original format or in a different/abbreviated format) without regard to the communication devices and/or networks (i.e., data-centric vs. telephony-centric) employed for the transmission of the messages.

A unified messaging system implemented on a data-centric network takes the unified messaging system concept

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a step further by internally storing and manipulating the messages in a digital format irrespective of whether the message was received and/or will be sent in the digital or analog format. As is well known, digital formatting increases the flexibility with which information contained in the messages can be analyzed, stored, manipulated, and/or routed among the various communication devices. More importantly, the implementation of the unified messaging system on a data-centric network permits the subscriber to access his account through any computer or telephone irrespective of the geographic location from which the accessing and/or modifications are made.

To facilitate discussion, FIG. 1 depicts, in accordance with one embodiment of the present invention, the general overview of a unified message system 101. With reference to FIG. 1, there is shown a user computer 100, representing a computer that may be employed to access and/or modify the communication options associated with the communication services offered by the unified messaging system. Although user computer 100 is shown to be a desktop personal computer (such as an Intel-based personal computer), user computer 100 may in fact represent any computing device capable of accessing the data-centric network (represented by reference 102 in FIG. 1). By way of example, user computer 100 may represent a laptop computer, which may access the data-centric network either through wired connections or in a wireless manner. As another example, user computer 100 may represent a personal digital assistant (PDA) or a palm-top computer, or a thin-client type computer.

Data-centric network 102 may represent any computer network which couples together users from geographically dispersed locations. In a preferred embodiment, data-centric network 102 represents the Internet, although data-centric network 102 may also represent a Wide Area Network (WAN), a Local Area Network (LAN), a Virtual Private Network (PN) or any similarly suitable networking arrangement that allows users to log in from a remote terminal.

With reference to FIG. 1, there is shown data link 104, representing the high speed data lines for transmitting and receiving data between unified messaging system 101 and data-centric network 102. In a preferred embodiment, data link 104 is implemented by high speed T1 data lines, although other types of data lines such as fiber optics may also be employed. A network interface system 105 couples data link 104 to the remainder of unified messaging system 101, which is shown to include four servers as shown (the servers are discussed later herein).

Network interface system 105 represents the interface system that ensures data is properly transmitted and received between unified messaging system 101 and data-centric network 102. Of course network interface system 105 may vary depending on the implementations of the data-centric network and/or the portion of unified messaging system 101 to which network interface system 105 is coupled.

In the case of the Internet, one current preferred implementation of network interface system 105 may include a router 106, a hub 108, a DNS (Domain Name System) facility 110, and a firewall 112. Typically, the router 106 is a piece of hardware or software that examines the IP address of data packets and determines the routing of the data packets based on the IP address.

Router 106 acts cooperatively with hub 108 and DNS facility 110 to permit properly addressed data packets to be received through firewall 112. Router 106, hub 108, DNS facility 110, and firewall 112 are conventional and will not be belabored here for the sake of brevity.

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At the heart of the unified message system are a set of servers which are coupled to exchange data and are connected to firewall 112 and the public telephone network. Typically, a server represents a computer that processes data for use by other data-consumer devices (such as other servers, computers or any of the communication devices through a proper interface circuit). There is shown a database server 120, which is employed to, among other tasks, organize and maintain the subscriber communication profile database. The subscriber communication profile database itself may reside with database server 120 and represents a data store of subscriber accounts and communication option settings associated therewith. Incoming messages to a particular subscriber or outgoing messages from that subscriber are formatted and routed in accordance with the communication option settings stored in the subscriber communication profile database. Properly authorized changes to the communication option settings will be reflected in the communication option settings stored in the subscriber communication profile database and employed to handle subsequent messages (whether incoming or outgoing).

Subscriber authentication data may be employed to access to a subscriber communication profile database. Subscriber authentication data may be stored in the database server. Subscriber authentication may be accomplished using several techniques. For example, a numeric password, an alphanumeric password, a hidden code wherein the password is randomly hidden in a string (i.e., xxxppppxx, xppppxxxx, etc.) and binmetrics (e.g., retina scans, hand prints, palm prints, finger prints, voice recognition, etc.).

A web server 122 is employed to facilitate interaction between unified messaging system 101 and data-centric network 102. Web server 122 represents one of the systemside servers (i.e., a server that handles the exchange of data with the user's computer via the data-centric network) and is employed, for example, to present to user computer 100 the log-in screen when a subscriber employs user computer 100 to access the unified messaging service. Once that subscriber is properly authenticated (e.g., through a password procedure or another suitable authentication procedure), web server 122 then communicates with database server 120 to obtain the current communication option settings for that subscriber and to display the current communication option settings and an individualized web page to the subscriber for review.

In one preferred embodiment, web server 122 is employed to store all messages pertaining to a particular subscriber. The messages are stored as files in web server 122. These messages may represent, for example, voice files, facsimiles, e-mail messages, voice mail messages, or the like. Pointers in database server 120 facilitate access to the stored messages in web server 122. However, it is contemplated that the messages may be stored in any of the servers discussed herein and/or in a separate storage device accessible by the servers.

An e-mail server 124 is employed to process incoming and outgoing e-mail messages. By way of example, e-mail server 124 may be employed to format/translate the e-mail messages so that they can be properly transmitted to other e-mail systems and understood thereat. For incoming messages, e-mail server 124 may be employed to format/translate the information transmitted via the incoming e-mail and to prepare them for use by other data consumers.

A telephony server 126 is shown coupled between telephone link 128 and the remainder of the unified messaging system and may include any number of subservers, such as

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are shown in FIG. 2. In a manner analogous to web server 122, telephony server 126 represents a system-side server (i.e., a telephony server that handles the exchange of information with the user via the telephony-centric network) and is employed to facilitate interaction between unified messaging system 101 and telephony-centric network 129. Telephony server 126 may be employed to, for example, translate the telephone signals (such as the dialed digits) into a digital format for the purpose of authenticating and allowing subscriber access. Telephony server 126 may also be employed to translate such dialed digits and/or other telephone signals (such as a facsimile tones or verbal commands) into digital data, which may then be employed to facilitate handling of messages and/or the communication option settings. In one embodiment, Dialogic board models D 240 SC-T1, D 480 SC-1, CP-4/SC, CP-6/SC, and/or CP-12/SC (available from Dialogic Corporation of Parsippany, N.J.) are employed to facilitate the translation between telephone signals and digital data. Once translation is performed, software within telephony server 126 employs the digital data to decide how to handle the message using the communication option settings obtained from the subscriber communication profile database. If the subscriber, through predefined dialing sequences, indicates that he wishes to review and/or modify the communication option settings, software within telephony server 126 operates cooperatively with database server 120 to affect the change to the communication option settings. Once the communication option settings are reflected in the subscriber communication profile database stored in database server 120, the new communication option settings are consulted each time a message needs to be handled by the unified messaging system.

Telephony-centric network 129 represents any telephone network which couples together telephony-type communication devices (e.g., facsimile machines, pagers, telephones) from geographically dispersed locations. By way of example, telephony-centric network 129 may represent a plain old telephone system (POTS), a wired telephone network popularly known as Public Service Telephone Network (PSTN) or a cellular network or a combination thereof. Telephony-centric network 129 is well known and will not be discussed in great detail here for the sake of brevity.

A telephone 130 is shown coupled to telephony-centric network 129. In reality, it should be understood that a wide variety of telephony devices (which are not shown to simplify the illustration) are connected to telephony-centric network 129. Some of these exemplary communication devices are, as mentioned, facsimile machines, pagers, cellular telephone sets, wired telephone sets, and the like.

Telephone link 128 represents the telephone communication channels for transmitting and receiving telephone signals between unified messaging system 101 and telephony-centric network 129. In a preferred embodiment, telephone link 128 represents high bandwidth T1 telephone links, although other types of telephone links may also be employed. Note that there is no requirement that the data transmitted on telephone link 128 be analog. In fact, with the upcoming convergence of data networks and telephone networks, the telephony information that traverses telephone link 128 may well be digital (in which case, telephony server 116 will be adapted to handle digital telephony signals instead of analog telephony signals). As a noteworthy point, it is expected that as data networks and telephone networks converge, the relevant functionality represented by the servers herein may still apply, albeit with the proper modification to handle an all-digital combined data/telephone network.

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FIG. 2 illustrates, in accordance with one embodiment of the present invention, how the 48 telephone lines provided per T1 link may be divided among the subservers of telephony server 126. As shown in FIG. 2, 45 of the telephone lines may be employed by a main message server 202 to handle the incoming/outgoing voice calls, the incoming voice mail messages, and the incoming facsimiles. Of the 45 telephone lines, 32 may be provisioned for the subscribing or non-subscribing users to dial into the unified messaging system, and the other 13 telephone lines may be employed to allow outgoing calls to be made from within the unified messaging system. The outgoing calls may, for example, be calls destined for the unified messaging system but are rerouted out of the unified messaging system in accordance with a subscriber's communication option setting or they may be originated by the subscriber, who dials into the unified messaging system (using a toll-free access number, for example) and requests an outgoing call be made therefrom to some destination number (for example by punching in the "#" key after authentication, followed by the destination number), thus employing the unified messaging system as a type of calling card service.

One of the 48 telephone lines of the T1 link may be reserved for outgoing facsimile transmission, which is handled by an outgoing facsimile server 204. Another telephone line may be apportioned for the outgoing paging service, which is handled by an outgoing pager server 206. Outgoing voice-mail messages are handled by voice mail server 208, which is coupled to another one of the 48 telephone lines of the T1 link as shown.

To elaborate, outgoing voicemails are voice messages sent to a voicemail phone number which may be created via the web or the telephone. Outgoing voicemails may be new voicemails, replies to other messages or forwarded as a voicemail. For example, when forwarding a voicemail via the web, the voicemail may be treated as an attachment to a speech synthesized text message with the recipient address as a telephone number. Outgoing voicemail servers may be geographically distributed and communicate with each other via internet in such a way that the server nearest the destination voicemail phone number may be assigned to send the voicemail via either a circuit-switched call or packet-switched call.

Outgoing facsimiles are facsimile messages sent to a facsimile telephone number which may be created via the web or the telephone. Outgoing facsimiles may be new facsimiles, replies to other messages, forwarded as a facsimile or call-forwarded as a facsimile in which the system stores the incoming facsimile and then forwards the facsimile to the subscriber's facsimile-forward number. For example, when forwarding a facsimile via the web, the facsimile may be treated as an attachment to TIFF conversion of a text message with the recipient address as a phone number. Like outgoing voicemail servers, outgoing facsimile servers may also be geographically distributed. Outgoing facsimile servers may communicate with each other via internet in such a way that the server nearest to the destination facsimile telephone number may be assigned to send the facsimile via either a circuit-switched call or packet-switched call.

Outgoing pages are paging messages sent to a pager number which may be created via the telephone either by the caller or by the system when sending notification. Like outgoing voicemail servers, outgoing page servers may also be geographically distributed. Outgoing page servers may communicate with each other via the internet in such a way that the server nearest to the destination pager telephone

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number may be assigned to send the page via either a circuit-switched call or packet-switched call.

There may also be outgoing emails and their servers that do not involve circuit switched calls. Some pagers may be alphanumerical type and can receive messages as an email. In this case, the outgoing pager server may delegate these requests to the outgoing email servers.

In one embodiment, messages sent to the unified messaging system may be stored in web server 122 with pointers to these messages being held in database server 120. The above mentioned set of sub-servers (outgoing facsimile server, outgoing pager server and outgoing voice mail server) are arranged to make requests to the database server for outgoing messages stored on the web server. If an outgoing message is detected by a sub-server, software within the sub-servers decides how to handle the outgoing message according to the communication option settings obtained from the subscriber communication profile database. Again, a Dialogic board may be employed, in one embodiment, to facilitate the translation between the stored data and the outgoing telephone signal.

All types of outgoing message requests (voicemail, facsimile, email, pages) are queued in the database server. These requests can also be associated with a delivery time (e.g., the default time is "now"). Each type of request may be stored in a separate queue. An outgoing server of a particular type of message periodically checks its queue from the database server to see if any request's time is up for delivery.

It should be noted that FIG. 2 shows only one exemplary way to divide the T1 telephone lines among the various sub-servers of telephony server 126. Depending on the traffic pattern generated by subscribing and non-subscribing users of the unified messaging system, these lines and sub-servers may be scaled as necessary.

FIG. 3 illustrates, in accordance with one embodiment of the present invention, the user-interface for an exemplary computer-implemented control center, representing the visual display panel for displaying the communication options pertaining to a particular subscriber on a computer display screen. Through computer-implemented control center 302, the user may quickly and conveniently review the communication option settings associated with the various services and make changes thereto. That is, the computer-implemented control center 302 serves as the centralized control panel for reviewing and/or customizing the communication options associated with the various communication services. FIG. 4 illustrates aspects of computer-implemented control center 302 in greater detail.

In the exemplary implementation of FIG. 3, six representative communication options are shown. The call forwarding service 304, if it is enabled, allows incoming calls through telephony-centric network 129 to be routed to a provided forwarding number 306. The call forwarding option setting may also be seen in the detailed computer-implemented control center view of FIG. 4, which shows the communication options in greater detail.

To accomplish the forwarding, telephony server 126 consults, after a call is made to a subscriber's telephone number, the subscriber communication profile database in database server 120. If the call forwarding option is enabled, that call is then forwarded to the forwarding number specified by telephony server 126 via an outgoing telephone line. If the forwarding number does not pick up, the call may be rerouted, for example, to the subscriber's voice mail box. If the call forwarding option is not enabled and the caller does

not choose other methods discussed below to try to contact the subscriber, the call may then be forwarded to the subscriber's voice mail box as well.

The "follow me" service 308 gives the subscriber the ability to designate a set of telephone numbers where he may likely be found and gives the caller the option to try to find the subscriber (or someone who may appropriately handle the incoming call) at those numbers. By way of example, during a work day, a given subscriber may be contacted either at his main office telephone, his secondary office telephone, or his cellular telephone in his car. On the weekend, that same subscriber may be found at home or at a cellular telephone in his boat. The office/car set of telephone numbers may be designated a primary set 310 and the home/boat set of telephone numbers may be designated a second set. FIG. 4 shows the communication options associated with the follow me service in greater detail.

On a week day, the subscriber may enable the follow me service option and select primary set 310 as the set of telephone numbers where he may likely be found. On the weekend, the subscriber may enable the follow me service option and select the secondary set, for example. From the caller's perspective, the follow me service is preferably an on-demand service. That is, the caller is preferably given the option to decide whether to employ the follow me service by pressing a predefined key in response to instructions or to simply allow the call to be passed to voice mail if unanswered.

If the follow me service is enabled by the subscriber and chosen by the caller, telephony server 126 will try to place outgoing calls to the numbers designated in the selected set starting with the first number in the set. To ensure that the call is not inadvertently completed vis-a-vis by a bystander who happens to be near the destination telephone and picks up the telephone when it rings, telephony server 126 may allow the caller to record his name. Telephony server 126 then announces the name to the person picking up the destination telephone prior to giving that person a choice of whether to accept the call. If the person who picks up the call is indeed the person for whom the call is intended, the entry of a predefined key press (on instructions by telephony server 126) on the destination telephone keypad will allow telephony server 126 to complete the end-to-end connection. In this manner, the follow me service may be employed as a call screening mechanism if desired. Telephony server 126 may try all the numbers in the set in sequence until the subscriber is found. If not, the call may be allowed to pass into the subscriber's voice mail box.

In one embodiment, the follow-me service may not always use the same sequence to callout a subscriber when the subscriber has set up several numbers as his possible locations (e.g., weekday routine or weekend and evening routine). The follow-me service may use the number where the subscriber is last located (stored in memory) as the first number to dial in the sequence provided the time for the last location happened within a certain interval (e.g., an hour).

An alternate number service 312 gives the subscriber the ability to designate a telephone number as an alternate number where the caller can attempt to locate the subscriber (or someone who may appropriately handle the incoming call) at a number designated in advance (314). FIG. 4 shows the communication options associated with the alternate number service in greater detail. The alternate number option is similar to call forwarding with the exception that the alternate number option is an on-demand service. That is, the caller is preferably given the option to decide whether to

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employ the alternate number service by pressing a predefined key in response to instructions or to simply allow the call to be passed to voice-mail if unanswered. In all other respects, the alternate number service may function in the same way as the call forwarding service. An alternate number may also be used to set a personal operator number (e.g., your secretary).

A message alert option 316 gives the subscriber the ability to select whether to be alerted when a message is received. The message that triggers the alert may be specified using any number of filtering criteria stored as part of the subscriber communication option settings. In the example of FIG. 3, the filtering criteria is "urgent" (318) although any type of filtering may be applied. For example, the filtering criteria could be the message's sender, subject or content. The sender could be identified by his email address or phone number (e.g., caller ID).

FIG. 4 shows, in one embodiment, the communication option settings associated with the unified messaging service in greater detail. With respect to the message alert service, the alerting itself may be accomplished using any of the communication devices controlled by the unified messaging system (e.g., pager, telephone at a designated number, voice mail in a designated voice mail box, facsimile at a designated facsimile number, e-mail at a designated e-mail address, and the like). In accordance with one particularly advantageous embodiment, the message alert is sent to a pager via outgoing pager sub-server 206 since it is the device most likely to be near the subscriber. In one embodiment, the server that sends the alert (e.g., the web server if the incoming message is an e-mail, the telephony server if the incoming message is a facsimile or telephone call) may send out a predefined alphanumeric code that identifies the type of incoming message. The alphanumeric code itself may be predefined either by the unified messaging system or by the subscriber if customization is desired. Preferably, the alert is sent to the subscriber's own number to alert the subscriber that an incoming message fitting the filtering criteria has been received at the unified messaging system.

A facsimile receiving service 319 allows the user to receive facsimile at the unified messaging system if someone sends a facsimile to the subscriber's telephone number. FIG. 4 shows the communication options associated with the facsimile receiving service in greater detail. If the facsimile receiving option is enabled, telephony server 126 will monitor for the facsimile tone and process the incoming message as a facsimile if the facsimile tone is detected. In one embodiment, the incoming facsimile is stored as a GIF or TIFF file that may be viewed by the subscriber through a web page by clicking on facsimile mail link 320. If the facsimile forward option 406 is also enabled, the facsimile will also be forwarded by the outgoing facsimile server 204 to another facsimile machine at specified facsimile number 408, additionally or alternatively to storing a copy of the received facsimile at the unified messaging service. If the facsimile option is not enabled but the call forwarding option is enabled, the call is forwarded on and may be picked up by the forwarded device (if it is a functioning facsimile machine). If not, the incoming facsimile will not be received.

A paging service 321 allows a message sent to the subscriber to be rerouted to a pager designated by the subscriber. Paging service 321 is preferably an on-demand service and allows the caller, if desired, to send a short message to a pager designated by the subscriber. The pager number designated by the subscriber may be designated at location 404a (the paging service number) and, if required,

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using location 404b (the PIN number for the pager). If the paging service is enabled, a caller to the subscriber's telephone number will be given an option to send a short message to the pager subscriber pager (for example, by pressing a predefined key to send the short message). As noted before, the caller may also choose any of the other services follow me service 308 and/or alternate number 312 if enabled. In this manner, a single telephone number may serve as the access point to receive a page, a voice message, a facsimile, etc.

For alphanumeric pagers with an email address, the outgoing page server may use text to describe the alert message (e.g., "you have a urgent voicemail from caller ID 4152222222 with return number 4153333333") instead of codes as in the case of numeric pagers. The outgoing pager server can then delegate the alert messages to the outgoing email server.

Voice mail messages that are stored may be listened to using either the computer (through an appropriate software/sound card) by clicking on voice mail link 330 (FIG. 3) or a telephone coupled to the telephony-centric network. E-mails that are sent to the subscriber using the subscriber's e-mail address may be read on-line by, for example, clicking on e-mail link 332 (FIG. 3). In one embodiment, telephone server 126 may be equipped with a text-to-speech facility to allow the subscriber to listen to the content of the e-mail message through a telephone. FIG. 3 also shows an outgoing e-mail link 334, which links the subscriber to an e-mail application program to allow the subscriber to compose and send out e-mail messages. In the case of replying an email via phone, a voice recording may be taken and sent as an email attachment.

As can be appreciated from the above examples, computer-implemented control center 302 provides a central visual interface that allows a subscriber to efficiently review and/or modify the communication option settings associated with the various communication services offered. This is in sharp contrast with time-consuming and burdensome prior art approaches whereby the person is required to contact different entities and deal with different accounts to change the communication options associated with different communication services.

In one embodiment, the computer-implemented control center has two views: the minimized view and the full view. In the minimized view (e.g., FIG. 3 in one embodiment), the computer-implemented control center may simply show the simplified routing details and the on-off settings associated with the communication options. Although the user may make changes to the on-off settings, fuller edit capabilities are preferably provided in the full view. In the full view (e.g., FIG. 4 in one embodiment), the computer-implemented control center additionally add explanations and detailed routing choices. If desired, an authentication procedure may be implemented with either the minimized view or the full view to ensure that the person making editing changes to the communication options is properly authorized.

It should be appreciated that the communication services and options discussed in connection with FIGS. 3 and 4 are only illustrative of the capabilities of the inventive computer-implemented control center. It should be apparent to those skilled in the art that the same control panel may be presented to the subscriber through the telephony server and the telephone interface if the subscriber wishes to review and/or change the communication options using a telephone connected to the telephony-centric network. The communi-

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cation options may be presented in a sound format and the subscriber may be offered an option menu to review and/or change any communication option setting. Further, it should also be apparent to those skilled in the art that communication services options other than the preferred and discussed communication services and options can readily be controlled by the inventive computer-implemented control center. Irrespective of the services and options involved, a subscriber can access the centralized computer-implemented control center through either a computer connected to the data-centric network or a telephone connected to the telephony-centric network to review and/or change the communication options.

FIG. 5 is a flow diagram depicting, in one embodiment, the relevant steps of a computer-implemented process for handling access to the unified messaging system through the telephony-centric network by a subscribing or a non-subscribing caller. The subscriber may wish to access the unified messaging system to, for example, listen to stored voice mail messages or e-mail messages, to use the unified messaging system as a calling card service, or to review and/or modify the communication options. A non-subscribing caller may access the unified messaging system to, for example, send a facsimile, a page, or to call the subscriber. The first step 502 involves accessing the unified message system through a telephone using the subscriber's assigned telephone number. A set of two numbers may be assigned to a user, a local telephone number and a toll-free telephone number, both of which may be associated with a single user account.

The dialed digits reaches telephony server 126 via telephone link 128. Telephony server 126 then obtains the DNIS (direct number information service) by digitizing the dialed digits (step 504) and employs the dialed digits to obtain the communication option settings associated with the account represented by the dialed telephone number (step 506). As mentioned earlier, these communication option settings reside in the subscriber communication profile database, which may be managed by database server 120, in one embodiment. During this time, telephone server 126, through an appropriate interface board such as the aforementioned Dialogic board, monitors the incoming line for a facsimile tone or telephone key digit tone.

If no such facsimile tone or telephone key digit tone is detected (step 508), the call is assumed to be a normal call to the subscriber and will be handled (in steps 510 and 512) in accordance with the communication option settings in the manner discussed earlier (e.g., forwarded if call forwarding is on, routed to an alternate number if the caller selects that option and alternate service is enabled, and the like).

On the other hand, if a facsimile tone is detected by telephony server 126, the call will be handled as an incoming facsimile in accordance with the communication option settings (step 514). By way of example, if the facsimile receiving service is enabled, a copy of the facsimile will be stored for later retrieval by the subscriber. If the facsimile forwarding option is enabled, a copy of the facsimile is alternatively or additionally sent to the forwarded facsimile number.

On the other hand, if a keyed digit tone is detected by telephony server 126, software within telephony server will handle the options chosen by the caller (step 516). By way of example, one option may represent the subscriber wishing to access the computer-implemented control center (via an appropriate key press) to review and/or change the communication options. In this case, telephony server 126 prefer-

ably serves up the account statistics, e.g., how many voice mail messages, facsimiles, e-mail messages, etc. are waiting and asks the caller for authentication as a subscriber. If there are none, the subscriber may wish to quickly hang up and not go through the authentication procedure (and extending the cost of the call). This, however, is an option and may be eliminated if privacy is a concern (that is, authentication may take place before the presentation of account statistics).

Telephony server 126 may then obtain the authentication data from the caller (e.g., the password) and compare it with the subscriber account authentication data, which it obtains from the subscriber communication profile database in the database server. Authentication may be done via keyed digit entry or, in one embodiment, by voice commands, which may then be translated to keyed digits by appropriate software. If authenticated, the subscriber may then be presented with a menu that allows the subscriber to review and/or change the communication options via key press or voice commands. Once the subscriber saves the changes, the changed communication option settings will be employed to handle future messages transmitted and/or received through either the telephony-centric network or the data-centric network.

As one of the options, the subscriber may be given a choice (with proper authentication) to use the unified messaging system to originate an outgoing call. The choice may be made via, for example, a predefined key press or voice command. This is useful in situations wherein the subscriber accesses his account at the unified messaging system through his toll-free number (e.g., from the airport or from someone else's telephone) and instructs the telephony server to connect his incoming call to an outgoing call to a provided destination telephone number and charges the cost to his account. In this manner, the unified messaging system may be employed as a convenient calling card.

A keyed digit may also represent an on-demand service selection chosen by the caller. In this case, the caller simply presses an appropriate key when prompted and employs one of the on-demand services is then employed to handle his call. Various on-demand services have been discussed in connection with FIGS. 3 and 4 and will not be repeated here for the sake of brevity.

FIG. 6 is a flow diagram depicting, in one embodiment, the relevant steps of a computer implemented process for handling access to the unified messaging system by a subscriber through a data-centric network (such as the Internet in the example of FIG. 6). The subscriber may wish to access the unified messaging system to, for example, listen to stored voice mail messages, view stored e-mail messages or facsimiles, send e-mail messages or facsimiles, or to review and/or modify the communication options. The first step 602 involves accessing the unified messaging system web site, using a unified messaging system web address (e.g., "unifiedmessagingsystem.com"), with user computer 100 through a data-centric network 102.

The web site request connects to the web server 122 via data link 104 and network interface system 105. Following connection to the web site, the unified messaging system web server 122 serves up a login page using, for example, ASP-active server pages (step 604). The next step (step 606) includes entering authentication data such as a subscriber identifier (ID), e.g., username and password, at the login page. The web server 122, after obtaining the authentication data, compares it with the subscriber account authentication data (step 608), which it obtains from the subscriber communication profile database from the database server. If

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authenticated, the subscriber may then be presented with a graphical menu of the communication options (step **610**) that allows the subscriber to retrieve his email/voicemail/fax messages, or review and/or modify the communication options via user computer **100** (step **612**). Once the subscriber saves the changes (step **614**), the modified communication option settings will be employed to handle future messages transmitted and/or received through either the telephony-centric network or the data-centric network.

Accordingly, the present invention provides a single centralized facility that gives a subscriber of various communication services (e.g., telephone, facsimile, pager, e-mail) the ability to review and modify his communication options (e.g., call forwarding, follow me service, alternate number, message alert, facsimile receiving, paging, routings and the like). This review and modification is done in an interactive and simplified manner, via either the data-centric network or the telephony-centric network.

The unified messaging system benefits a subscriber by integrating various communication services which up to now have existed as separate services. This is in sharp contrast to the prior art where the dual existence of the data-centric network and the telephony-centric network has forced the service providers to manage communication options as separate accounts.

This integration simplifies management, billing, and more importantly the routing of messages among the various services. The unified messaging system gives the subscriber more control with regards to how the world communicates to the subscriber. For example, a subscriber may specify that an incoming facsimile be forwarded to a computer for viewing or to a printer for printing, listen to e-mail messages through a telephone, receive pager notification when a facsimile is received, etc. The unified messaging system allows messages to be received, stored, retrieved, and/or forwarded without regard to the communication devices and/or networks employed for the transmission of the messages. In fact, the unified messaging system even gives non-subscribers choices with its on-demand services associated with some of the communication options.

The unified messaging system advantageously removes the burden of managing different physical devices and different accounts. The subscriber no longer has to access multiple accounts to modify options. As mentioned previously, a person who travels may wish to forward calls made from his home and office telephone numbers to his cellular telephone or hotel telephone. Likewise, he may wish to divert facsimiles sent to an office facsimile machine to a facsimile machine that is more local. While in a meeting, however, one may wish to temporarily divert the voice calls to a voice mail box or forwards it to another person for handling. To stay in touch, these communication options may need to be changed many times during the course of the day and/or each time one arrives at a new location.

Using the present invention, a person need only access the unified messaging system either with a telephone or a computer. The communication options may then be modified as needed with a few key strokes. The subscriber has the ability to review communication options at a single facility and no longer has to recall communication options from memory or contact each service provider.

Furthermore, the present invention advantageously allows remote access to the unified messaging system from any location that is connected to the data-centric network or the telephony-centric network. The subscriber no longer has to be physically present at the forwarding origin to modify the

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forwarding option. This advantage leads to yet another advantage in that the unified messaging system may be used as a calling card. The subscriber if located at the airport, for example, contacts his unified messaging system toll-free telephone number. The system then allows the subscriber the option of rerouting this call to another location.

Also, the present invention advantageously allows the subscriber the convenience of one telephone number (or two, including a toll-free 800 number). Multiple number confusion is avoided by connecting multiple numbers through the one number of the unified messaging system.

While this invention has been described in terms of several preferred embodiments, there are alterations, permutations, and equivalents which fall within the scope of this invention. It should also be noted that there are many alternative ways of implementing the methods and apparatuses of the present invention. It is therefore intended that the following appended claims be interpreted as including all such alterations, permutations, and equivalents as fall within the true spirit and scope of the present invention.

What is claimed is:

1. A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said computer-implemented control center comprising:

a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services;

a computer server coupled to exchange data with said subscriber communication profile database, said computer server being configured to generate a single graphical menu for displaying said communication options for each of said communication services at the same time, and to visually display said single graphical menu on said display terminal when said subscriber employs said display terminal to access said computer-implemented control center through said data-centric network, said computer server also being configured to receive from said subscriber via said display terminal and said data-centric network a first change to said communication options and to update said first change to said account in said subscriber communication profile database, wherein said single graphical menu comprises at least a first display area for showing a first communication service and a first communication option associated with said first communication service, and a second display area for showing a second communication service and a second communication option associated with said second communication service, the first display area and the second display area being displayed at the same time in said single graphical menu, and wherein the first communication option includes a first enable option for enabling or disabling the first communication service, and wherein the second communication option includes a second enable option for enabling or disabling the second communication service; and

a telephony server coupled to exchange data with said communication profile database, said telephony server

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being configured to audibly represent said communication options to said telephone when said subscriber employs said telephone to access said computer-implemented control center, said telephony server also being configured to receive from said subscriber via said telephone a second change to said communication options and to update said second change to said account in said subscriber communication profile database.

2. The computer-implemented control center of claim 1 further comprising:

a pager server coupled to exchange data with said communication profile database, wherein said communication services further include a pager alert service and wherein said communication options further include a pager alert option, said pager server being configured to transmit, when said pager alert option is enabled, an alert to a pager through said telephony-centric network if an e-mail message is received by said subscriber through said data-centric network, said pager having a page number that is also specified as part of said pager alert option.

3. The computer-implemented control center of claim 1 wherein said plurality of communication services include a call forwarding ice configured to permit said subscriber to specify whether a call received at a telephone number associated with said account be forwarded to a forwarding telephone number, said communication options including a call forwarding enable option and said forwarding telephone number.

4. The computer-implemented control center of claim 1 wherein said plurality of communication services include a follow me service, said communication options including a follow-me service enable option associated with said follow-me service and a set of telephone numbers, said follow-me service enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to a telephone associated with said set of telephone numbers.

5. The computer-implemented control center of claim 4 wherein said follow me service is configured to ring in sequence each one of telephones associated said set of telephone numbers until said call by said caller is accepted.

6. The computer-implemented control center of claim 5 wherein said follow-me service is configured to ring first a last-found telephone number, said last-found telephone number representing a telephone number associated with a phone previously employed by said subscriber to answer an immediately preceding call to said subscriber.

7. The computer-implemented control center of claim 1 wherein said plurality of communication services include an alternate number service, said communication options including an alternate number service enable option associated with said alternate number service and an alternate telephone number, said alternate number service enable option, when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to an alternate telephone associated with said alternate telephone number.

8. The computer-implemented control center of claim 1 wherein the first communication option includes a first routing option, and wherein the second communication option includes a second routing option.

9. The computer-implemented control center of claim 8 wherein either the first routing option or the second routing option includes a plurality of routings.

10. The computer-implemented control center of claim 1 wherein the first communication service and the second

communication service are selected from a call forwarding service, a follow me service, an alternate number service, a message alert service, a fax receiving service or a paging service.

11. The computer implemented control center of claim 1 wherein said plurality of communication services comprise an e-mail service configured to permit said subscriber to receive and transmit e-mails through said data centric network, and a voice telephone service configured to permit said subscriber to receive and transmit voice calls through said telephony-centric network.

12. The computer-implemented control center of claim 11 wherein said plurality of communication services include a facsimile service configured to permit said subscriber to receive at said unified messaging system a facsimile through said telephony-centric network and said telephony server, said communication options including a facsimile receiving enable option associated with said facsimile service.

13. The computer-implemented control center as recited in claims 12 wherein said facsimile and said voice telephone service are both implemented using a single telephone number.

14. The computer-implemented control center of claim 1 further comprising a pager server coupled to exchange data with said communication profile database, wherein said communication services include a pager alert service, and wherein said communication options include a pager alert enable option associated with said pager alert service and a pager number, said pager alert option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a page by said caller to said pager number.

15. The computer-implemented control center of claim 1 wherein at least one of the communication service is an on-demand communication service, and wherein said communication options include an on-demand communication enable option associated with said on-demand communication service and a forwarding number, said on-demand communication enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call or message by said caller to said forwarding number.

16. A computer-implemented method for permitting a subscriber of a unified messaging system to customize communication options pertaining to a plurality of communication services associated with said unified messaging system through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said plurality of communication services comprising a voice telephone service and e-mail service, said communication options being accessible via display terminals coupled to said data-centric network and via telephones coupled to said telephony-centric network, said computer-implemented method comprising:

receiving, via either a first display terminal of said display terminals or a first telephone of said telephones, a request to access an account pertaining to said subscriber, said account including said communication options for said subscriber;

obtaining from a subscriber communication profile database said communication options for said subscriber in said account, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services, wherein at least one of the communication services is an on-demand communication service, and wherein

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said communication options include an on-demand communication enable option and a forwarding number associated with said on-demand communication service, said on-demand communication enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call or message by said caller to said forwarding number;

presenting said communication options for said subscriber on respective one of said first display terminals or through said first telephone from which said request to access is received, said communication options being visually presented in a single graphical menu arranged for displaying said communication options for each of the communication services at the same time on said first display terminal via an individualized web page associated with said subscriber or audibly presented at said first telephone;

receiving communication setting edits from said subscriber through said respective one of said first display terminal and said first telephone from which said request to access is received, said communication setting edits pertaining to said communication options; and

modifying said communication options in accordance with said communication setting edits, wherein said communication services are subsequently controlled in accordance with said communication options after said modifying.

17. The computer-implemented method of claim 16 wherein said plurality of communication services include a call forwarding service, said receiving said communication edits includes receiving at least one of a call forwarding enable option associated with said call forwarding service and a forwarding telephone number associated with said call forwarding service, said call forwarding enable option, when enabled by said subscriber, forwards calls destined for said subscriber at said unified messaging system to said forwarding telephone number, and wherein said modifying said communication options includes modifying a setting associated with said forwarding service in accordance with said at least one of said call forwarding enable option and said forwarding telephone number.

18. The computer-implemented method of claim 16 wherein said plurality of communication services include a follow-me service, said receiving said communication edits includes receiving, as one of said communication setting edits, at least one of a follow-me service enable option associated with said follow-me service and a set of telephone numbers, said follow-me service enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to a telephone associated with said set of telephone numbers, and wherein said modifying said communication options includes modifying a setting associated with said follow-me service in accordance with said at least one of said follow-me service enable option and said set of telephone numbers.

19. A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said computer-implemented control center comprising:

a subscriber communication profile database, said subscriber communication profile database having therein

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an account pertaining to said subscriber, said account including said communication options for said subscriber, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services, wherein at least one of the communication services is an on-demand communication service, and wherein said communication options include an on-demand communication enable option and a forwarding number associated with said on-demand communication service, said on-demand communication enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call or message by said caller to said forwarding number;

a computer server coupled to exchange data with said subscriber communication profile database, said computer server being configured to generate a single graphical menu for displaying said communication options for each of said communication services at the same time, and to visually display said single graphical menu on said display terminal when said subscriber employs said display terminal to access said computer-implemented control center through said data-centric network, said computer server also being configured to receive from said subscriber via said display terminal and said data-centric network a first change to said communication options and to update said first change to said account in said subscriber communication profile database;

a telephony server coupled to exchange data with said communication profile database, said telephony server being configured to audibly represent said communication options to said telephone when said subscriber employs said telephone to access said computer-implemented control center, said telephony server also being configured to receive from said subscriber via said telephone a second change to said communication options and to update said second change to said account in said subscriber communication profile database.

20. A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said computer-implemented control center comprising:

a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services;

a computer server coupled to exchange data with said subscriber communication profile database, said computer server being configured to generate a single graphical menu for displaying said communication options for each of said communication services at the same time, and to visually display said single graphical menu on said display terminal when said subscriber employs said display terminal to access said computer-implemented control center through said data-centric network, said computer server also being configured to

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receive from said subscriber via said display terminal and said data-centric network a first change to said communication options and to update said first change to said account in said subscriber communication profile database, wherein said single graphical menu comprises at least a first display area for showing a first communication service, and a first communication option associated with said first communication service, and a second display area for showing a second communication service, and a second communication option associated with said second communication service, the first display area and the second display area being displayed at the same time in said single graphical menu, and wherein the first communication service and the second communication service are selected from a call forwarding service, a follow me

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service, an alternate number service, a message alert service, a fax receiving service or a paging service,

a telephony server coupled to exchange data with said communication profile database, said telephony server being configured to audibly represent said communication options to said telephone when said subscriber employs said telephone to access said computer-implemented control center, said telephony server also being configured to receive from said subscriber via said telephone a second change to said communication options and to update said second change to said account in said subscriber communication profile database.

*   *   *   *   *

EXHIBIT 2

TO

<u>RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS</u>

US006728357B2

(12) **United States Patent**
O'Neal et al.

(10) Patent No.: **US 6,728,357 B2**
(45) Date of Patent: **Apr. 27, 2004**

(54) **CENTRALIZED COMMUNICATION CONTROL CENTER AND METHODS THEREFOR**

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(73) Assignee: **Microsoft Corporation**, Redmond, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 483 days.

(21) Appl. No.: 09/907,051

(22) Filed: **Jul. 17, 2001**

(65) **Prior Publication Data**

US 2002/0110231 A1 Aug. 15, 2002

Related U.S. Application Data

(63) Continuation of application No. 09/239,585, filed on Jan. 29, 1999, now Pat. No. 6,263,064.

(51) Int. Cl.⁷ H04M 3/42

(52) U.S. Cl. 379/201.04; 379/88.16; 379/88.13; 379/211.03

(58) Field of Search 379/88.12–88.17, 379/88.22–88.28, 90.01, 201.01, 201.02, 201.04, 201.12, 211.01–211.03, 212.01, 230, 213.01, 214.01, 217.01, 209.01, 210.01; 370/351–354

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(57) **ABSTRACT**

A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the plurality of communication services. The communication options include parameters associated with individual ones of the plurality of the communication services and routings among the plurality of communication services. The plurality of communication services comprise a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network. The communication options are accessible via display terminals coupled to the data-centric network and via telephones coupled to the telephony-centric network.

18 Claims, 6 Drawing Sheets

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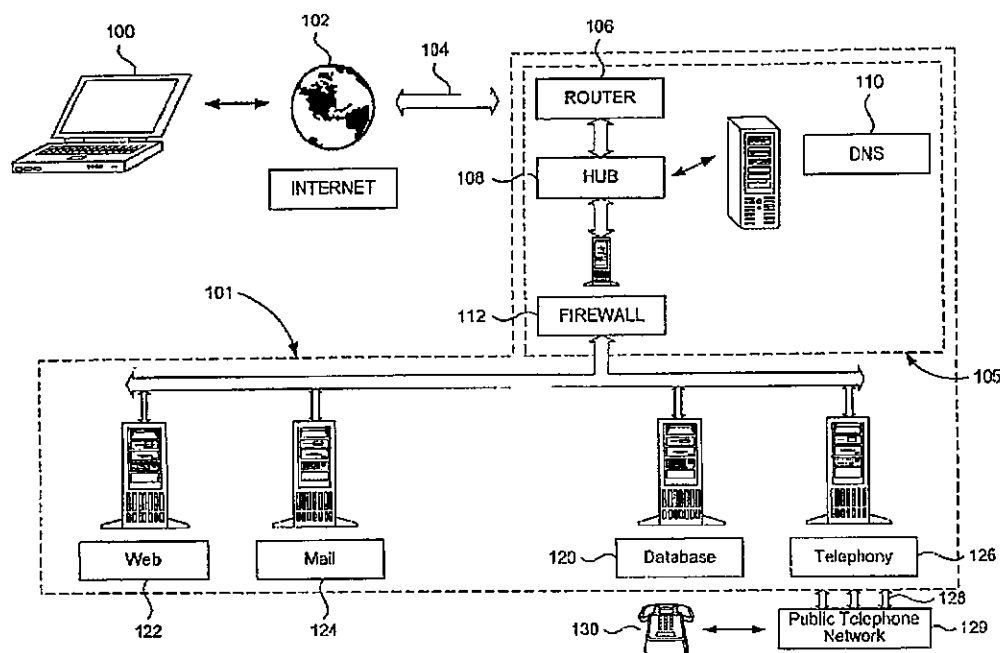
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FIG. 1

FIG. 2

Welcome to ThinkLink by ITC

Configuration Wizard - set up your enhanced voicemail
Product Overview - details on product features
Release Notes - notes on latest release

ITC

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Think Link by ITC

Message Central

☒ 0 New Email
[Fax] 0 New Faxmail
📶 1 New Voicemail

Compose	Options
Folders	My Account
Addresses	Help Desk
	Log Out

332
320
330
334

Search the Web　　with Excite

[   ]　[Search]

Tools: Yellow Pages People Finder Maps TV Sports Classifieds

Mini View | Help | [Update]

Communications Dashboard

306
310
314
318

Call Forward	on◉ off○	Your call wills be directly forwarded to [1234567890▾][Edit]
Follow Me Service	on◉ off○	Your call wills be routed as follows [Primary ▾][Edit]
Alternate Number	on◉ off○	Callers pressing "0" are transferred to [3214567890▾][Edit]
Message Alert	on○ off◉	You will be alerted of new messages [Urgent ▾][Edit]
Fax Receiving	on◉ off○	You will be able to receive faxes at your ThinkLink number.
Paging	on○ off◉	Callers will be prompted with the option of sending a page.

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FIG. 3

FIG. 4

Start

Subscriber's assigned phone number is dialed ⟋ 502

Telephony server obtains DNIS ⟋ 504

512

506 ⟋ Telephony server looks up communication option settings in database server

Route call accordingly

508 ⟋ Dialogic board listens for fax or key digit

—No→ Handle call in accordance with communication option settings ⟋ 510

Keyed digit
—Yes—   —Yes—
                                          Fax

Handle keyed digits in accordance with communication option settings ⟋ 516

Handle fax in accordance with communication option settings ⟋ 514

FIG. 5

ABS00000069

FIG. 6

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CENTRALIZED COMMUNICATION CONTROL CENTER AND METHODS THEREFOR

CROSS REFERENCE TO RELATED APPLICATIONS

The present application is a continuation of U.S. patent application Ser. No. 09/239,585, filed on Jan. 29, 1999, now U.S. Pat. No. 6,263,064.

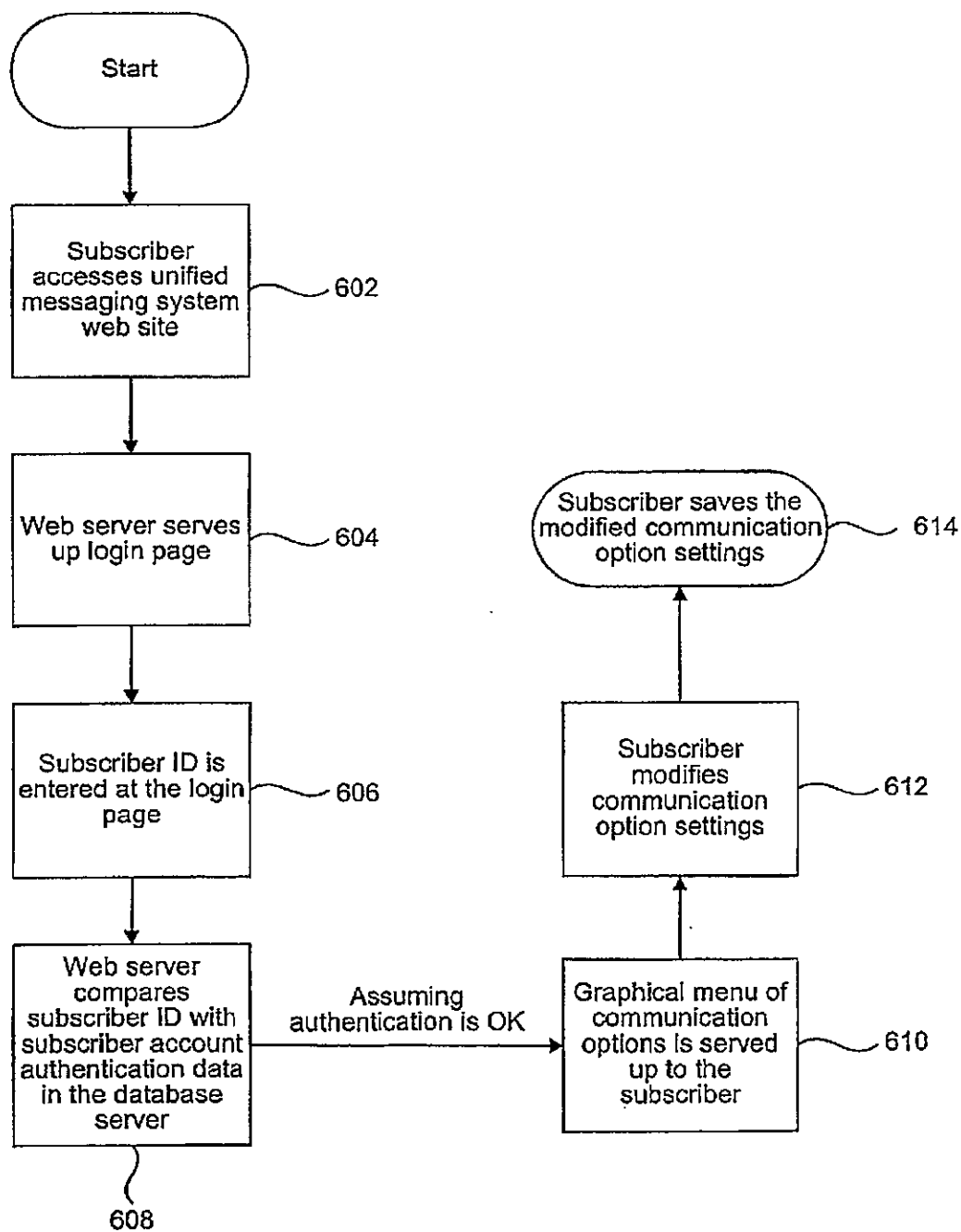application Ser. No. 09/239,560, filed Jan. 29, 1999, entitled "INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM DISTRIBUTED OVER A LARGE GEOGRAPHICAL AREA";

U.S. Pat. No. 6,411,695, issued Jun. 25, 2002, entitled "A SYSTEM AND METHOD FOR PROVIDING UNIFIED MESSAGING TO A USER WITH A THIN WEB BROWSER";

U.S. Pat. No. 6,463,145, issued Oct. 8, 2002, entitled "COMPUTER-IMPLEMENTED CALL FORWARDING OPTIONS AND METHODS THEREFOR IN A UNIFIED MESSAGING SYSTEM";

application Ser. No. 09/240,893, filed Jan. 29, 1999, entitled "INTERACTIVE BILLING SYSTEM UTILIZING A THIN WEB CLIENT INTERFACE";

application Ser. No. 09/240,368, filed Jan. 29, 1999, entitled "A SYSTEM AND METHOD TO MANAGE PHONE SOURCED MESSAGES";

application Ser. No. 09/240,434, filed Jan. 29, 1999, entitled "METHOD AND APPARATUS FOR NETWORK INDEPENDENT INITIATION OF TELEPHONY";

application Ser. No. 09/240,435, filed Jan. 29, 1999, entitled "APPARATUS AND METHOD FOR DEVICE INDEPENDENT MESSAGING NOTIFICATION";

application Ser. No. 09/240,436, filed Jan. 29, 1999, entitled "APPARATUS AND METHOD FOR CHANNEL-TRANSPARENT MULTIMEDIA BROADCAST MESSAGING";

application Ser. No. 09/239,589, filed Jan. 29, 1999, entitled "VOICE ACCESS THROUGH A DATA-CENTRIC NETWORK TO AN INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM".

BACKGROUND OF THE INVENTION

The present invention relates to communication services available via a data-centric network (i.e., a network that carries digital data) and a telephony-centric network (i.e., a network that carries telephony information such as voice, fax, pager, and the like). More particularly, the present invention relates to a centralized facility and methods therefor that allow a subscriber of various communication services to review and customize his communication options, in an interactive and simplified manner, via either the data-centric network or the telephony-centric network.

Both the data-centric network (e.g., a distributed computer network) and the telephony-centric network (e.g., public telephone network) have existed for some time. Broadly speaking, the data-centric network (such as the Internet) may be thought of as a global computer network that connects millions of computer terminals all over the world in such a way that digitized information can be exchanged irrespective of the different hardware and software platforms that may be utilized to gain access to the data-centric network. People and businesses around the world use the data-centric network to retrieve information,

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communicate and conduct business globally, and access a vast array of services and resources on-line. In a similar manner, the telephony-centric network (whether wired or wireless) may also be thought of as another global network that connects the millions of telephony devices (such as voice-oriented telephones, pagers, facsimile machines, voice mail boxes, and the like) together in such a way that a user at one of the telephony devices can readily transmit information to other telephony devices irrespective of geographic boundaries.

In the past, these two networks existed as separate domains. This is because the widely accessible data-centric network is a fairly recent phenomenon. For decades, the only network that has been available to the masses is the analog telephony-centric network, starting with the telegraph network of the nineteenth century. However, as more and more of the services traditionally offered through the telephony-centric network are being offered in a digital format by the data-centric network, the distinction between the data-centric network and the telephony-centric network begins to blur. Irrespective of whether these two networks exist as separate networks physically or conceptually going forward, the legacies of their separate existence can be seen in the various different communication services and communication devices that currently exist.

By way of example, there exist many different communication devices and services available today to allow a person to communicate to another person, e.g., telephones, facsimile machines, electronic mail (e-mail), pagers, voice mail, and the like. Generally speaking, a telephone is a communication device employed to transmit and receive speech and other sounds. A facsimile machine is a communication device to transmit and receive graphical data. A pager is a highly portable device that allows its user to receive data, and in some cases transmit limited data to a pager service provider. A voice mail box is essentially a service that allows one person to temporarily store telephone messages for retrieval by another. E-mail services allow e-mail users to transmit and receive data from computer terminals connected to the data-centric network. All these devices and services are well known in the art and will not be elaborated further for the sake of brevity.

Currently, these communication services are viewed, both by the service providers who create and maintain the network infrastructure and the subscribers who employ the devices and networks for communication, as separate services. This is due, partly but not entirely, to past government deregulation efforts and gradual technological evolution that have given rise to different service providers, all competing to provide the communication services to individual consumers. Thus, it is not unusual for a consumer to have an e-mail account with one service provider, a telephone account with another service provider and a pager account with yet another service provider. Even if the different services are contracted through a single service provider, the dual existence of the data-centric network and the telephony-centric network, as well as existing billing and account management infrastructures, often force the service provider to manage each of these services as a separate account.

One of the consequences of having different accounts for different services is the proliferation of telephone numbers, facsimile numbers, and pager numbers that a typical consumer must deal with. Thus, it is not at all unusual for a consumer to have a home telephone number, a work telephone number, one or more cellular telephone numbers, a pager number, and a facsimile number, with each of these

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numbers being assigned to a different communication device. Not only are these various numbers difficult to remember for the consumer, they are confusing to others.

A more serious consequence is the burden on the consumer who needs to manage the communication options associated with the different services (which are now assigned to different physical devices and managed as different accounts) to ensure that incoming and outgoing messages are properly handled. By way of example, a person who travels may wish to forward voice calls made to his home and office telephone numbers to his cellular telephone or hotel telephone. Likewise, he may wish to divert facsimiles sent to his office facsimile machine to a facsimile machine that is more local. While in a meeting, however, he may wish to temporarily divert the voice calls to his voice mail box or forward it to another person for handling. To stay in touch, these communication options may need to be changed many times during the course of the day and/or each time he arrives at a new location.

To accomplish the above, the person in the above example currently needs to first ascertain the current communication option settings associated with the various services that he uses. Unless he is diligent in noting and/or remembering the recent changes in the communication option settings, he may need to call each of the service providers to find out what the current communication option settings are. Assuming that he knows the current communication option settings and such calls need not be made, the user must still access each communication device and/or contact each service provider to reroute the incoming and outgoing messages.

By way of example, some facsimile machines currently allow the user to forward the incoming facsimile to another facsimile machine by entering a particular combination of the forwarding number and predefined codes on the facsimile machine keypad. Likewise, many telephone systems require the user to physically enter the forwarding telephone number and predefined codes on the keypad of the telephone from which forwarding originates. However, this requires the user to be physically present at the facsimile machine or telephone from which forwarding originates. If he owns one of these telephones or facsimile machines and is on the road, such forwarding would not be possible absent help from another person who has such physical access.

The fact that each communication service is treated as a different account also requires the user in the example above to access each account and/or service provider to accomplish the changes. Thus, multiple calls may need to be made to change the communication option settings associated with the different communication services. Even with automated response systems in place to handle such changes, these calls take time and can aggravate even the most patient users, especially if multiple calls need to be made to the multiple service providers each time he moves from one location to another. As can be appreciated by those skilled in the art, such approach is at best time consuming and unwieldy.

More typically, a busy user would just not bother changing the communication options associated with the various communication devices that he owns. He would rather suffer the possibility of missing out on some messages than constantly contacting the different service providers and making changes on individual services. In this case, the communication services that he owns are not employed to their fullest potential.

In view of the forgoing there are desired improved techniques for allowing a user of communication services to review and customize the communication options associated with these services in a simplified and convenient manner.

SUMMARY OF THE INVENTION

The invention relates, in one embodiment, to a computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the plurality of communication services. The communication options include parameters associated with individual ones of the plurality of the communication services and routings among the plurality of communication services. The plurality of communication services comprising a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network. The communication options is accessible via display terminals coupled to the data-centric network and via telephones coupled to the telephony-centric network. The computer-implemented control center includes a subscriber communication profile database. The subscriber communication profile database has therein an account pertaining to the subscriber. The account includes the communication options for the subscriber.

There is also included a computer server coupled to exchange data with the subscriber communication profile database. The computer server is configured to visually display the communication options on one of the display terminals when the subscriber employs the one of the display terminals to access the computer-implemented control center. The computer server also is configured to receive from the subscriber via the one of the display terminals a first change to the communication options and to update the first change to the account in the subscriber communication profile database.

There is further included a telephony server coupled to exchange data with the communication profile database. The telephony server is configured to audibly represent the communication options to one of the telephones when the subscriber employs the one of the telephones to access the computer-implemented control center. The telephony server also is configured to receive from the subscriber via the one of the telephones a second change to the communication options and to update the second change to the account in the subscriber communication profile database.

The invention relates, in another embodiment, to a computer-implemented method for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the plurality of communication services. The communication options include parameters associated with individual ones of the plurality of the communication services and routings among the plurality of communication services. The plurality of communication services includes a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network. The communication options are accessible via display terminals coupled to the data-centric network and via telephones coupled to the telephony-centric network. The method includes providing a subscriber communication profile database. The subscriber communication profile database has therein an account pertaining to the subscriber. The account includes the communication options for the subscriber.

There is also included visually displaying the communication options on one of the display terminals, using a computer server coupled to exchange data with the subscriber communication profile database, when the subscriber employs the one of the display terminals to access the computer-implemented control center. There is further included receiving from the subscriber via the one of the

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<table>
<tr><td>5</td><td>6</td></tr>
</table>

display terminals at the computer server a first change to the communication options. The first change to the communication options pertains to either the voice telephone service or the e-mail service. Additionally, there is included updating the first change to the account in the subscriber communication profile database, thereby resulting in a first updated subscriber communication profile database, wherein subsequent messages to the subscriber at the unified messaging system, including the voice telephone service, are handled in accordance with the first updated subscriber communication profile database.

These and other features of the present invention will be described in more detail below in the detailed description of the invention and in conjunction with the following figures.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings and in which like reference numerals refer to similar elements and in which:

FIG. 1 depicts, in one embodiment, the general overview of the unified message system.

FIG. 2 illustrates, in one embodiment, how the 48 telephone lines provided per T1 link may be divided among the sub-servers of the telephony server.

FIG. 3, in one embodiment, the user interface portion of the computer-implemented control center, representing the visual display panel for displaying the communication options pertaining to a particular subscriber on a computer display screen.

FIG. 4 shows the communication options in greater detail, in accordance with one embodiment of the present invention.

FIG. 5 is a flow diagram depicting, in one embodiment, the relevant steps of a computer-implemented process for handling access to the unified messaging system through the telephony-centric network by a subscribing or a non-subscribing caller.

FIG. 6 is a flow diagram depicting, in one embodiment, the relevant steps of a computer-implemented process for handling access to the unified messaging system through a computer network by a subscriber.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention will now be described in detail with reference to a few preferred embodiments thereof and as illustrated in the accompanying drawings. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be obvious, however, to one skilled in the art, that the present invention may be practiced without some or all of these specific details. In other instances, well known process steps have not been described in detail in order not to unnecessarily obscure the present invention.

In accordance with one aspect of the present invention, there is provided a computer-implemented control center which is coupled to the data-centric network and the telephony-centric network, and which allows a user to access, using either a telephone or a computer, the communication options associated with the various communication services of a unified messaging service. Unlike the prior art approach which requires the user to contact individual service providers/accounts and/or to access individual communication devices to review and change the communica-

tion options associated therewith, the computer-implemented control center allows the communication options associated with the various communication services to be accessed substantially all at once. That is, the computer-implemented control center provides a single central facility through which the communication option settings associated with the different communication services may be reviewed and/or modified.

In accordance with one aspect of the present invention, the communication options, which include the options associated with individual communication services as well as routings among the different individual communication services, are accessible using either a computer network interface (e.g., a web page) or a telephone network interface (e.g., via a telephone). The communication option settings themselves do not reside with individual communication devices or require access through a particular communication device (such as with the assigned facsimile machines or telephones discussed earlier). Rather, the communication option settings are centralized within the universally accessible computer-implemented control center and can be utilized to properly control the communication options associated with the various services and to facilitate control of the routings therebetween. More importantly, they can be reviewed and modified by a properly authenticated subscriber of the unified messaging service through any suitable computer or telephone irrespective of the geographic location from which the accessing and/or modifications are made.

In the aforementioned co-pending patent applications entitled "INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM DISTRIBUTED OVER A LARGE GEOGRAPHICAL AREA" (application Ser. No. 09/239,560, filed Jan. 29, 1999), and "A SYSTEM AND METHOD FOR PROVIDING UNIFIED MESSAGING TO A USER WITH A THIN WEB BROWSER" (U.S. Pat. No. 6,411,685, issued Jun. 25, 2002), which are all incorporated herein by reference, some inventive unified messaging services and their various features are disclosed. Although the present invention may be implemented on any unified messaging system, reference may be made to the above-mentioned co-pending patent applications for details pertaining to preferable unified messaging systems on which the present invention may be implemented.

In general terms, a unified messaging system benefits a user by integrating various communication services, which up to now have existed as separate services. The integration facilitates simplified management, billing, and more importantly the routing of messages among the various services. With a unified messaging service, a user may, for example, specify that an incoming facsimile be forwarded to a computer for viewing or to a printer for printing, listen to e-mail messages through a telephone, receive pager notification when a facsimile is received, or the like. Within limits, a unified messaging system allows messages to be received, stored, retrieved, and/or forwarded (in the original format or in a different/abbreviated format) without regard to the communication devices and/or networks (i.e., data-centric vs. telephony-centric) employed for the transmission of the messages.

A unified messaging system implemented on a data-centric network takes the unified messaging system concept a step further by internally storing and manipulating the messages in a digital format irrespective of whether the message was received and/or will be sent in the digital or analog format. As is well known, digital formatting increases the flexibility with which information contained in

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the messages can be analyzed, stored, manipulated, and/or routed among the various communication devices. More importantly, the implementation of the unified messaging system on a data-centric network permits the subscriber to access his account through any computer or telephone irrespective of the geographic location from which the accessing and/or modifications are made.

To facilitate discussion, FIG. 1 depicts, in accordance with one embodiment of the present invention, the general overview of a unified message system 101. With reference to FIG. 1, there is shown a user computer 100, representing a computer that may be employed to access and/or modify the communication options associated with the communication services offered by the unified messaging system. Although user computer 100 is shown to be a desktop personal computer (such as an Intel-based personal computer), user computer 100 may in fact represent any computing device capable of accessing the data-centric network (represented by reference 102 in FIG. 1). By way of example, user computer 100 may represent a laptop computer, which may access the data-centric network either through wired connections or in a wireless manner. As another example, user computer 100 may represent a personal digital assistant (PDA) or a palm-top computer, or a thin-client type computer.

Data-centric network 102 may represent any computer network which couples together users from geographically dispersed locations. In a preferred embodiment, data-centric network 102 represents the Internet, although data-centric network 102 may also represent a Wide Area Network (WAN), a Local Area Network (LAN), a Virtual Private Network (VPN) or any similarly suitable networking arrangement that allows users to log in from a remote terminal.

With reference to FIG. 1, there is shown data link 104, representing the high speed data lines for transmitting and receiving data between unified messaging system 101 and data-centric network 102. In a preferred embodiment, data link 104 is implemented by high speed T1 data lines, although other types of data lines such as fiber optics may also be employed. A network interface system 105 couples data link 104 to the remainder of unified messaging system 101, which is shown to include four servers as shown (the servers are discussed later herein).

Network interface system 105 represents the interface system that ensures data is properly transmitted and received between unified messaging system 101 and data-centric network 102. Of course network interface system 105 may vary depending on the implementations of the data-centric network and/or the portion of unified messaging system 101 to which network interface system 105 is coupled.

In the case of the Internet, one current preferred implementation of network interface system 105 may include a router 106, a hub 108, a DNS (Domain Name System) facility 110, and a firewall 112. Typically, the router 106 is a piece of hardware or software that examines the IP address of data packets and determines the routing of the data packets based on the IP address.

Router 106 acts cooperatively with hub 108 and DNS facility 110 to permit properly addressed data packets to be received through firewall 112. Router 106, hub 108, DNS facility 110, and firewall 112 are conventional and will not be belabored here for the sake of brevity.

At the heart of the unified message system are a set of servers which are coupled to exchange data and are connected to firewall 112 and the public telephone network.

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Typically, a server represents a computer that processes data for use by other data-consumer devices (such as other servers, computers or any of the communication devices through a proper interface circuit). There is shown a database server 120, which is employed to, among other tasks, organize and maintain the subscriber communication profile database. The subscriber communication profile database itself may reside with database server 120 and represents a data store of subscriber accounts and communication option settings associated therewith. Incoming messages to a particular subscriber or outgoing messages from that subscriber are formatted and routed in accordance with the communication option settings stored in the subscriber communication profile database. Properly authorized changes to the communication option settings will be reflected in the communication option settings stored in the subscriber communication profile database and employed to handle subsequent messages (whether incoming or outgoing).

Subscriber authentication data may be employed to access to a subscriber communication profile database. Subscriber authentication data may be stored in the database server. Subscriber authentication may be accomplished using several techniques. For example, a numeric password, an alpha-numeric password, a hidden code wherein the password is randomly hidden in a string (i.e., xxxppppxx, xppppxxxx, etc.) and biometrics (e.g., retina scans, hand prints, palm prints, finger prints, voice recognition, etc.).

A web server 122 is employed to facilitate interaction between unified messaging system 101 and data-centric network 102. Web server 122 represents one of the system-side servers (i.e., a server that handles the exchange of data with the user's computer via the data-centric network) and is employed, for example, to present to user computer 100 the log-in screen when a subscriber employs user computer 100 to access the unified messaging service. Once that subscriber is properly authenticated (e.g., through a password procedure or another suitable authentication procedure), web server 122 then communicates with database server 120 to obtain the current communication option settings for that subscriber and to display the current communication option settings and an individualized web page to the subscriber for review.

In one preferred embodiment, web server 122 is employed to store all messages pertaining to a particular subscriber. The messages are stored as files in web server 122. These messages may represent, for example, voice files, facsimiles, e-mail messages, voice mail messages, or the like. Pointers in database server 120 facilitate access to the stored messages in web server 122. However, it is contemplated that the messages may be stored in any of the servers discussed herein and/or in a separate storage device accessible by the servers.

An e-mail server 124 is employed to process incoming and outgoing e-mail messages. By way of example, e-mail server 124 may be employed to format/translate the e-mail messages so that they can be properly transmitted to other e-mail systems and understood thereat. For incoming messages, e-mail server 124 may be employed to format/translate the information transmitted via the incoming e-mail and to prepare them for use by other data consumers.

A telephony server 126 is shown coupled between telephone link 128 and the remainder of the unified messaging system and may include any number of sub-servers, such as are shown in FIG. 2. In a manner analogous to web server 122, telephony server 126 represents a system-side server (i.e., a telephony server that handles the exchange of infor-

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mation with the user via the telephony-centric network) and is employed to facilitate interaction between unified messaging system 101 and telephony-centric network 129. Telephony server 126 may be employed to, for example, translate the telephone signals (such as the dialed digits) into a digital format for the purpose of authenticating and allowing subscriber access. Telephony server 126 may also be employed to translate such dialed digits and/or other telephone signals (such as a facsimile tones or verbal commands) into digital data, which may then be employed to facilitate handling of messages and/or the communication option settings. In one embodiment, Dialogic board models D 240 SC-T1, D 480 SC-1, CP-4 /SC, CP-6/SC, and/or CP-12/SC (available from Dialogic Corporation of Parsippany, N.J.) are employed to facilitate the translation between telephone signals and digital data. Once translation is performed, software within telephony server 126 employs the digital data to decide how to handle the message using the communication option settings obtained from the subscriber communication profile database. If the subscriber, through predefined dialing sequences, indicates that he wishes to review and/or modify the communication option settings, software within telephony server 126 operates cooperatively with database server 120 to affect the change to the communication option settings. Once the communication option settings are reflected in the subscriber communication profile database stored in database server 120, the new communication option settings are consulted each time a message needs to be handled by the unified messaging system.

Telephony-centric network 129 represents any telephone network which couples together telephony-type communication devices (e.g., facsimile machines, pagers, telephones) from geographically dispersed locations. By way of example, telephony-centric network 129 may represent a plain old telephone system (POTS), a wired telephone network popularly known as Public Service Telephone Network (PSTN) or a cellular network or a combination thereof. Telephony-centric network 129 is well known and will not be discussed in great detail here for the sake of brevity.

A telephone 130 is shown coupled to telephony-centric network 129. In reality, it should be understood that a wide variety of telephony devices (which are not shown to simplify the illustration) are connected to telephony-centric network 129. Some of these exemplary communication devices are, as mentioned, facsimile machines, pagers, cellular telephone sets, wired telephone sets, and the like.

Telephone link 128 represents the telephone communication channels for transmitting and receiving telephone signals between unified messaging system 101 and telephony-centric network 129. In a preferred embodiment, telephone link 128 represents high bandwidth T1 telephone links, although other types of telephone links may also be employed. Note that there is no requirement that the data transmitted on telephone link 128 be analog. In fact, with the upcoming convergence of data networks and telephone networks, the telephony information that traverses telephone link 128 may well be digital (in which case, telephony server 116 will be adapted to handle digital telephony signals instead of analog telephony signals). As a noteworthy point, it is expected that as data networks and telephone networks converge, the relevant functionality represented by the servers herein may still apply, albeit with the proper modification to handle an all-digital combined data/telephone network.

FIG. 2 illustrates, in accordance with one embodiment of the present invention, how the 48 telephone lines provided per T1 link may be divided among the sub-servers of

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telephony server 126. As shown in FIG. 2, 45 of the telephone lines may be employed by a main message server 202 to handle the incoming/outgoing voice calls, the incoming voice mail messages, and the incoming facsimiles. Of the 45 telephone lines, 32 may be provisioned for the subscribing or non-subscribing users to dial into the unified messaging system, and the other 13 telephone lines may be employed to allow outgoing calls to be made from within the unified messaging system. The outgoing calls may, for example, be calls destined for the unified messaging system but are rerouted out of the unified messaging system in accordance with a subscriber's communication option setting or they may be originated by the subscriber, who dials into the unified messaging system (using a toll-free access number, for example) and requests an outgoing call be made therefrom to some destination number (for example by punching in the "#" key after authentication, followed by the destination number), thus employing the unified messaging system as a type of calling card service.

One of the 48 telephone lines of the T1 link may be reserved for outgoing facsimile transmission, which is handled by an outgoing facsimile server 204. Another telephone line may be apportioned for the outgoing paging service, which is handled by an outgoing pager server 206. Outgoing voice-mail messages are handled by voice mail server 208, which is coupled to another one of the 48 telephone lines of the T1 link as shown.

To elaborate, outgoing voicemails are voice messages sent to a voicemail phone number which may be created via the web or the telephone. Outgoing voicemails may be new voicemails, replies to other messages or forwarded as a voicemail. For example, when forwarding a voicemail via the web, the voicemail may be treated as an attachment to a speech synthesized text message with the recipient address as a telephone number. Outgoing voicemail servers may be geographically distributed and communicate with each other via internet in such a way that the server nearest the destination voicemail phone number may be assigned to send the voicemail via either a circuit-switched call or packet-switched call.

Outgoing facsimiles are facsimile messages sent to a facsimile telephone number which may be created via the web or the telephone. Outgoing facsimiles may be new facsimiles, replies to other messages, forwarded as a facsimile or call-forwarded as a facsimile in which the system stores the incoming facsimile and then forwards the facsimile to the subscriber's facsimile-forward number. For example, when forwarding a facsimile via the web, the facsimile may be treated as an attachment to Tiff conversion of a text message with the recipient address as a phone number. Like outgoing voicemail servers, outgoing facsimile servers may also be geographically distributed. Outgoing facsimile servers may communicate with each other via internet in such a way that the server nearest to the destination facsimile telephone number may be assigned to send the facsimile via either a circuit-switched call or packet-switched call.

Outgoing pages are paging messages sent to a pager number which may be created via the telephone either by the caller or by the system when sending notification. Like outgoing voicemail servers, outgoing page servers may also be geographically distributed. Outgoing page servers may communicate with each other via the internet in such a way that the server nearest to the destination pager telephone number may be assigned to send the page via either a circuit-switched call or packet-switched call.

There may also be outgoing emails and their servers that do not involve circuit switched calls. Some pagers may be

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alphanumerical type and can receive messages as an email. In this case, the outgoing pager server may delegate these requests to the outgoing email servers.

In one embodiment, messages sent to the unified messaging system may be stored in web server 122 with pointers to these messages being held in database server 120. The above mentioned set of sub-servers (outgoing facsimile server, outgoing pager server and outgoing voice mail server) are arranged to make requests to the database server for outgoing messages stored on the web server. If an outgoing message is detected by a sub-server, software within the sub-servers decides how to handle the outgoing message according to the communication option settings obtained from the subscriber communication profile database. Again, a Dialogic board may be employed, in one embodiment, to facilitate the translation between the stored data and the outgoing telephone signal.

All types of outgoing message requests (voicemail, facsimile, email, pages) are queued in the database server. These requests can also be associated with a delivery time (e.g., the default time is "now"). Each type of request may be stored in a separate queue. An outgoing server of a particular type of message periodically checks its queue from the database server to see if any request's time is up for delivery.

It should be noted that FIG. 2 shows only one exemplary way to divide the T1 telephone lines among the various sub-servers of telephony server 126. Depending on the traffic pattern generated by subscribing and non-subscribing users of the unified messaging system, these lines and sub-servers may be scaled as necessary.

FIG. 3 illustrates, in accordance with one embodiment of the present invention, the user-interface for an exemplary computer-implemented control center, representing the visual display panel for displaying the communication options pertaining to a particular subscriber on a computer display screen. Through computer-implemented control center 302, the user may quickly and conveniently review the communication option settings associated with the various services and make changes thereto. That is, the computer-implemented control center 302 serves as the centralized control panel for reviewing and/or customizing the communication options associated with the various communication services. FIG. 4 illustrates aspects of computer-implemented control center 302 in greater detail.

In the exemplary implementation of FIG. 3, six representative communication options are shown. The call forwarding service 304, if it is enabled, allows incoming calls through telephony-centric network 129 to be routed to a provided forwarding number 306. The call forwarding option setting may also be seen in the detailed computer-implemented control center view of FIG. 4, which shows the communication options in greater detail.

To accomplish the forwarding, telephony server 126 consults, after a call is made to a subscriber's telephone number, the subscriber communication profile database in database server 120. If the call forwarding option is enabled, that call is then forwarded to the forwarding number specified by telephony server 126 via an outgoing telephone line. If the forwarding number does not pick up, the call may be rerouted, for example, to the subscriber's voice mail box. If the call forwarding option is not enabled and the caller does not choose other methods discussed below to try to contact the subscriber, the call may then be forwarded to the subscriber's voice mail box as well.

The "follow me" service 308 gives the subscriber the ability to designate a set of telephone numbers where he may

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likely be found and gives the caller the option to try to find the subscriber (or someone who may appropriately handle the incoming call) at those numbers. By way of example, during a work day, a given subscriber may be contacted either at his main office telephone, his secondary office telephone, or his cellular telephone in his car. On the weekend, that same subscriber may be found at home or at a cellular telephone in his boat. The office/car set of telephone numbers may be designated a primary set 310 and the home/boat set of telephone numbers may be designated a second set. FIG. 4 shows the communication options associated with the follow me service in greater detail.

On a week day, the subscriber may enable the follow me service option and select primary set 310 as the set of telephone numbers where he may likely be found. On the weekend, the subscriber may enable the follow me service option and select the secondary set, for example. From the caller's perspective, the follow me service is preferably an on-demand service. That is, the caller is preferably given the option to decide whether to employ the follow me service by pressing a predefined key in response to instructions or to simply allow the call to be passed to voice mail if unanswered.

If the follow me service is enabled by the subscriber and chosen by the caller, telephony server 126 will try to place outgoing calls to the numbers designated in the selected set starting with the first number in the set. To ensure that the call is not inadvertently completed vis-a-vis by a bystander who happens to be near the destination telephone and picks up the telephone when it rings, telephony server 126 may allow the caller to record his name. Telephony server 126 then announces the name to the person picking up the destination telephone prior to giving that person a choice of whether to accept the call. If the person who picks up the call is indeed the person for whom the call is intended, the entry of a predefined key press (on instructions by telephony server 126) on the destination telephone keypad will allow telephony server 126 to complete the end-to-end connection. In this manner, the follow me service may be employed as a call screening mechanism if desired. Telephony server 126 may try all the numbers in the set in sequence until the subscriber is found. If not, the call may be allowed to pass into the subscriber's voice mail box.

In one embodiment, the follow-me service may not always use the same sequence to callout a subscriber when the subscriber has set up several numbers as his possible locations (e.g., weekday routine or weekend and evening routine). The follow-me service may use the number where the subscriber is last located (stored in memory) as the first number to dial in the sequence provided the time for the last location happened within a certain interval (e.g., an hour).

An alternate number service 312 gives the subscriber the ability to designate a telephone number as an alternate number where the caller can attempt to locate the subscriber (or someone who may appropriately handle the incoming call) at a number designated in advance (314). FIG. 4 shows the communication options associated with the alternate number service in greater detail. The alternate number option is similar to call forwarding with the exception that the alternate number option is an on-demand service. That is, the caller is preferably given the option to decide whether to employ the alternate number service by pressing a predefined key in response to instructions or to simply allow the call to be passed to voice-mail if unanswered. In all other respects, the alternate number service may function in the same way as the call forwarding service. An alternate number may also be used to set a personal operator number (e.g., your secretary).

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A message alert option 316 gives the subscriber the ability to select whether to be alerted when a message is received. The message that triggers the alert may be specified using any number of filtering criteria stored as part of the subscriber communication option settings. In the example of FIG. 3, the filtering criteria is "urgent" (318) although any type of filtering may be applied. For example, the filtering criteria could be the message's sender, subject or content. The sender could be identified by his email address or phone number (e.g., caller ID).

FIG. 4 shows, in one embodiment, the communication option settings associated with the unified messaging service in greater detail. With respect to the message alert service, the alerting itself may be accomplished using any of the communication devices controlled by the unified messaging system (e.g., pager, telephone at a designated number, voice mail in a designated voice mail box, facsimile at a designated facsimile number, e-mail at a designated e-mail address, and the like). In accordance with one particularly advantageous embodiment, the message alert is sent to a pager via outgoing pager sub-server 206 since it is the device most likely to be near the subscriber. In one embodiment, the server that sends the alert (e.g., the web server if the incoming message is an e-mail, the telephony server if the incoming message is a facsimile or telephone call) may send out a predefined alphanumeric code that identifies the type of incoming message. The alphanumeric code itself may be predefined either by the unified messaging system or by the subscriber if customization is desired. Preferably, the alert is sent to the subscriber's own number to alert the subscriber that an incoming message fitting the filtering criteria has been received at the unified messaging system.

A facsimile receiving service 319 allows the user to receive facsimile at the unified messaging system if someone sends a facsimile to the subscriber's telephone number. FIG. 4 shows the communication options associated with the facsimile receiving service in greater detail. If the facsimile receiving option is enabled, telephony server 126 will monitor for the facsimile tone and process the incoming message as a facsimile if the facsimile tone is detected. In one embodiment, the incoming facsimile is stored as a GIF or TIFF file that may be viewed by the subscriber through a web page by clicking on facsimile mail link 320. If the facsimile forward option 406 is also enabled, the facsimile will also be forwarded by the outgoing facsimile server 204 to another facsimile machine at specified facsimile number 408, additionally or alternatively to storing a copy of the received facsimile at the unified messaging service. If the facsimile option is not enabled but the call forwarding option is enabled, the call is forwarded on and may be picked up by the forwarded device (if it is a functioning facsimile machine). If not, the incoming facsimile will not be received.

A paging service 321 allows a message sent to the subscriber to be rerouted to a pager designated by the subscriber. Paging service 321 is preferably an on-demand service and allows the caller, if desired, to send a short message to a pager designated by the subscriber. The pager number designated by the subscriber may be designated at location 404a (the paging service number) and, if required, using location 404b (the PIN number for the pager). If the paging service is enabled, a caller to the subscriber's telephone number will be given an option to send a short message to the pager subscriber pager (for example, by pressing a predefined key to send the short message). As noted before, the caller may also choose any of the other services follow me service 308 and/or alternate number 312

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if enabled. In this manner, a single telephone number may serve as the access point to receive a page, a voice message, a facsimile, etc.

For alphanumeric pagers with an email address, the outgoing page server may use text to describe the alert message (e.g., "you have a urgent voicemail from caller ID 4152222222 with return number 4153333333") instead of codes as in the case of numeric pagers. The outgoing pager server can then delegate the alert messages to the outgoing email server.

Voice mail messages that are stored may be listened to using either the computer (through an appropriate software/sound card) by clicking on voice mail link 330 (FIG. 3) or a telephone coupled to the telephony-centric network. E-mails that are sent to the subscriber using the subscriber's e-mail address may be read on-line by, for example, clicking on e-mail link 332 (FIG. 3). In one embodiment, telephone server 126 may be equipped with a text-to-speech facility to allow the subscriber to listen to the content of the e-mail message through a telephone. FIG. 3 also shows an outgoing e-mail link 334, which links the subscriber to an e-mail application program to allow the subscriber to compose and send out e-mail messages. In the case of replying an email via phone, a voice recording may be taken and sent as an email attachment.

As can be appreciated from the above examples, computer-implemented control center 302 provides a central visual interface that allows a subscriber to efficiently review and/or modify the communication option settings associated with the various communication services offered. This is in sharp contrast with time-consuming and burdensome prior art approaches whereby the person is required to contact different entities and deal with different accounts to change the communication options associated with different communication services.

In one embodiment, the computer-implemented control center has two views: the minimized view and the full view. In the minimized view (e.g., FIG. 3 in one embodiment), the computer-implemented control center may simply show the simplified routing details and the on-off settings associated with the communication options. Although the user may make changes to the on-off settings, fuller edit capabilities are preferably provided in the full view. In the full view (e.g., FIG. 4 in one embodiment), the computer-implemented control center additionally add explanations and detailed routing choices. If desired, an authentication procedure may be implemented with either the minimized view or the full view to ensure that the person making editing changes to the communication options is properly authorized.

It should be appreciated that the communication services and options discussed in connection with FIGS. 3 and 4 are only illustrative of the capabilities of the inventive computer-implemented control center. It should be apparent to those skilled in the art that the same control panel may be presented to the subscriber through the telephony server and the telephone interface if the subscriber wishes to review and/or change the communication options using a telephone connected to the telephony-centric network. The communication options may be presented in a sound format and the subscriber may be offered an option menu to review and/or change any communication option setting. Further, it should also be apparent to those skilled in the art that communication services options other than the preferred and discussed communication services and options can readily be controlled by the inventive computer-implemented control cen-

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ter. Irrespective of the services and options involved, a subscriber can access the centralized computer-implemented control center through either a computer connected to the data-centric network or a telephone connected to the telephony-centric network to review and/or change the communication options.

FIG. 5 is a flow diagram depicting, in one embodiment, the relevant steps of a computer-implemented process for handling access to the unified messaging system through the telephony-centric network by a subscribing or a non-subscribing caller. The subscriber may wish to access the unified messaging system to, for example, listen to stored voice mail messages or e-mail messages, to use the unified messaging system as a calling card service, or to review and/or modify the communication options. A non-subscribing caller may access the unified messaging system to, for example, send a facsimile, a page, or to call the subscriber. The first step 502 involves accessing the unified message system through a telephone using the subscriber's assigned telephone number. A set of two numbers may be assigned to a user, a local telephone number and a toll-free telephone number, both of which may be associated with a single user account.

The dialed digits reaches telephony server 126 via telephone link 128. Telephony server 126 then obtains the DNIS (direct number information service) by digitizing the dialed digits (step 504) and employs the dialed digits to obtain the communication option settings associated with the account represented by the dialed telephone number (step 506). As mentioned earlier, these communication option settings reside in the subscriber communication profile database, which may be managed by database server 120, in one embodiment. During this time, telephone server 126, through an appropriate interface board such as the aforementioned Dialogic board, monitors the incoming line for a facsimile tone or telephone key digit tone.

If no such facsimile tone or telephone key digit tone is detected (step 508), the call is assumed to be a normal call to the subscriber and will be handled (in steps 510 and 512) in accordance with the communication option settings in the manner discussed earlier (e.g., forwarded if call forwarding is on, routed to an alternate number if the caller selects that option and alternate service is enabled, and the like).

On the other hand, if a facsimile tone is detected by telephony server 126, the call will be handled as an incoming facsimile in accordance with the communication option settings (step 514). By way of example, if the facsimile receiving service is enabled, a copy of the facsimile will be stored for later retrieval by the subscriber. If the facsimile forwarding option is enabled, a copy of the facsimile is alternatively or additionally sent to the forwarded facsimile number.

On the other hand, if a keyed digit tone is detected by telephony server 126, software within telephony server will handle the options chosen by the caller (step 516). By way of example, one option may represent the subscriber wishing to access the computer-implemented control center (via an appropriate key press) to review and/or change the communication options. In this case, telephony server 126 preferably serves up the account statistics, e.g., how many voice mail messages, facsimiles, e-mail messages, etc. are waiting and asks the caller for authentication as a subscriber. If there are none, the subscriber may wish to quickly hang up and not go through the authentication procedure (and extending the cost of the call). This, however, is an option and may be eliminated if privacy is a concern (that is, authentication may take place before the presentation of account statistics).

Telephony server 126 may then obtain the authentication data from the caller (e.g., the password) and compare it with the subscriber account authentication data, which it obtains from the subscriber communication profile database in the database server. Authentication may be done via keyed digit entry or, in one embodiment, by voice commands, which may then be translated to keyed digits by appropriate software. If authenticated, the subscriber may then be presented with a menu that allows the subscriber to review and/or change the communication options via key press or voice commands. Once the subscriber saves the changes, the changed communication option settings will be employed to handle future messages transmitted and/or received through either the telephony-centric network or the data-centric network.

As one of the options, the subscriber may be given a choice (with proper authentication) to use the unified messaging system to originate an outgoing call. The choice may be made via, for example, a predefined key press or voice command. This is useful in situations wherein the subscriber accesses his account at the unified messaging system through his toll-free number (e.g., from the airport or from someone else's telephone) and instructs the telephony server to connect his incoming call to an outgoing call to a provided destination telephone number and charges the cost to his account. In this manner, the unified messaging system may be employed as a convenient calling card.

A keyed digit may also represent an on-demand service selection chosen by the caller. In this case, the caller simply presses an appropriate key when prompted and employs one of the on-demand services is then employed to handle his call. Various on-demand services have been discussed in connection with FIGS. 3 and 4 and will not be repeated here for the sake of brevity.

FIG. 6 is a flow diagram depicting, in one embodiment, the relevant steps of a computer implemented process for handling access to the unified messaging system by a subscriber through a data-centric network (such as the Internet in the example of FIG. 6). The subscriber may wish to access the unified messaging system to, for example, listen to stored voice mail messages, view stored e-mail messages or facsimiles, send e-mail messages or facsimiles, or to review and/or modify the communication options. The first step 602 involves accessing the unified messaging system web site, using a unified messaging system web address (e.g., "unifiedmessagingsystem.com"), with user computer 100 through a data-centric network 102.

The web site request connects to the web server 122 via data link 104 and network interface system 105. Following connection to the web site, the unified messaging system web server 122 serves up a login page using, for example, ASP-active server pages (step 604). The next step (step 606) includes entering authentication data such as a subscriber identifier (ID), e.g., username and password, at the login page. The web server 122, after obtaining the authentication data, compares it with the subscriber account authentication data (step 608), which it obtains from the subscriber communication profile database from the database server. If authenticated, the subscriber may then be presented with a graphical menu of the communication options (step 610) that allows the subscriber to retrieve his email/voicemail/fax messages, or review and/or modify the communication options via user computer 100 (step 612). Once the subscriber saves the changes (step 614), the modified communication option settings will be employed to handle future messages transmitted and/or received through either the telephony-centric network or the data-centric network.

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Accordingly, the present invention provides a single centralized facility that gives a subscriber of various communication services (e.g., telephone, facsimile, pager, e-mail) the ability to review and modify his communication options (e.g., call forwarding, follow me service, alternate number, message alert, facsimile receiving, paging, routings and the like). This review and modification is done in an interactive and simplified manner, via either the data-centric network or the telephony-centric network.

The unified messaging system benefits a subscriber by integrating various communication services which up to now have existed as separate services. This is in sharp contrast to the prior art where the dual existence of the data-centric network and the telephony-centric network has forced the service providers to manage communication options as separate accounts.

This integration simplifies management, billing, and more importantly the routing of messages among the various services. The unified messaging system gives the subscriber more control with regards to how the world communicates to the subscriber. For example, a subscriber may specify that an incoming facsimile be forwarded to a computer for viewing or to a printer for printing, listen to e-mail messages through a telephone, receive pager notification when a facsimile is received, etc. The unified messaging system allows messages to be received, stored, retrieved, and/or forwarded without regard to the communication devices and/or networks employed for the transmission of the messages. In fact, the unified messaging system even gives non-subscribers choices with its on-demand services associated with some of the communication options.

The unified messaging system advantageously removes the burden of managing different physical devices and different accounts. The subscriber no longer has to access multiple accounts to modify options. As mentioned previously, a person who travels may wish to forward calls made from his home and office telephone numbers to his cellular telephone or hotel telephone. Likewise, he may wish to divert facsimiles sent to an office facsimile machine to a facsimile machine that is more local. While in a meeting, however, one may wish to temporarily divert the voice calls to a voice mail box or forwards it to another person for handling. To stay in touch, these communication options may need to be changed many times during the course of the day and/or each time one arrives at a new location.

Using the present invention, a person need only access the unified messaging system either with a telephone or a computer. The communication options may then be modified as needed with a few key strokes. The subscriber has the ability to review communication options at a single facility and no longer has to recall communication options from memory or contact each service provider.

Furthermore, the present invention advantageously allows remote access to the unified messaging system from any location that is connected to the data-centric network or the telephony-centric network. The subscriber no longer has to be physically present at the forwarding origin to modify the forwarding option. This advantage leads to yet another advantage in that the unified messaging system may be used as a calling card. The subscriber if located at the airport, for example, contacts his unified messaging system toll-free telephone number. The system then allows the subscriber the option of rerouting this call to another location.

Also, the present invention advantageously allows the subscriber the convenience of one telephone number (or two, including a toll-free 800 number). Multiple number

confusion is avoided by connecting multiple numbers through the one number of the unified messaging system.

While this invention has been described in terms of several preferred embodiments, there are alterations, permutations, and equivalents which fall within the scope of this invention. It should also be noted that there are many alternative ways of implementing the methods and apparatuses of the present invention. It is therefore intended that the following appended claims be interpreted as including all such alterations, permutations, and equivalents as fall within the true spirit and scope of the present invention.

What is claimed is:

1. A computer-implemented method for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services, said communication options include parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services, said plurality of communication services comprising a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network, said communication options being accessible via display terminals coupled to said data-centric network and via telephones coupled to said telephony-centric network, said method comprising:

providing a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber;

generating a single graphical menu for displaying said communication options for each of said communication services at the same time, wherein said single graphical menu comprises at least a first display area for showing a first communication service and a first communication option associated with said first communication service, and a second display area for showing a second communication service and a second communication option associated with said second communication service, the first display area and the second display area being displayed at the same time in said single graphical menu, and wherein the first communication option included a first enable option for enabling or disabling the first communication service, and wherein the second communication option includes a second enable option for enabling or disabling the second communication service;

visually displaying said single graphical menu on one of said display terminals, using a computer server coupled to exchange data with said subscriber communication profile database, when said subscriber employs said one of said display terminals to access said computer-implemented control center;

providing a telephony server coupled to exchange data with said communication profile database;

audibly representing said communication options to one of said telephones, using said telephony server, when said subscriber employs said one of said telephones to access said computer-implemented control center;

receiving from said subscriber via said one of said display terminals at said computer server a first change to at least one of said communication options, said first change to said communication options pertains to either said voice telephone service or said e-mail service; and

updating said first change to said account in said subscriber communication profile database, thereby result-

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ing in a first updated subscriber communication profile database, wherein subsequent messages to said subscriber at said unified messaging system, including said voice telephone service, are handled in accordance with said first updated subscriber communication profile database.

2. The computer-implemented method of claim 1 further comprising:

receiving at said telephony server from said subscriber via said one of said telephones a second change to at least one of said communication options; and

updating said second change to said account in said subscriber communication profile database, thereby resulting in a second updated subscriber communication profile database, wherein subsequent messages to said subscriber at said unified messaging system, including said e-mail service are handled in accordance with said updated subscriber communication profile database.

3. The computer-implemented method of claim 2 wherein said facsimile and said voice telephone service are both implemented using a single telephone number.

4. The computer-implemented method of claim 1 wherein said plurality of communication set-vices include a facsimile service configured to permit said subscriber to receive at said unified messaging system a facsimile through said telephony-centric network and said telephony server, said communication options including a facsimile receiving enable option associated with said facsimile service.

5. The computer-implemented method of claim 1 further comprising:

providing a pager server coupled to exchange data with said communication profile database, wherein said communication services further include a pager alert service and wherein said communication options further include a pager alert option, said pager server being configured to transmit, when said pager alert option is enabled, an alert to a pager through said telephony-centric network if an e-mail message is received by said subscriber through said data-centric network, said pager having a page number that is also specified as part of said pager alert option.

6. The computer-implemented method of claim 1 wherein said plurality of communication services include a call forwarding service configured to permit said subscriber to specify whether a call received at a telephone number associated with said account be forwarded to a forwarding telephone number, said communication options including a call forwarding enable option and said forwarding telephone number.

7. The computer-implemented method of claim 1 wherein said plurality of communication services include an alternate number service, said communication options including an alternate number service enable option associated with said alternate number service and an alternate telephone number, said alternate number service enable option, when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to an alternate telephone associated with said alternate telephone number.

8. The computer-implemented method of claim 1 wherein said plurality of communication services include a follow-me service, said communication options including a follow-me service enable option associated with said follow-me service and a set of telephone numbers, said follow-me service enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to a telephone associated with said set of telephone numbers.

9. The computer-implemented method of claim 8 wherein said follow-me service is configured to ring in sequence each one of said telephones associated with said set of telephone numbers until said call by said caller is accepted.

10. The computer-implemented method of claim 9 wherein said follow-me service is configured to ring first a last-found telephone number, said last-found telephone number representing a telephone number associated with a phone previously employed by said subscriber to answer an immediately preceding call to said subscriber.

11. The computer-implemented method of claim 8 wherein said single graphical menu comprises at least:

a first display area for showing said on-demand communication service, said on-demand communication enable option, and said forwarding number.

12. The computer-implemented method of claim 11 wherein said single graphical menu further comprises:

a second display area for showing a second communication service, and a second communication option associated with said second communication service, the first display area and the second display area being displayed at the same time in said single graphical menu.

13. The computer-implemented method of claim 12 wherein said on-demand communication service is selected from a follow-me service, an alternate number service, and a paging service, and wherein said second communication service is selected from a call forwarding service, a follow-me service, an alternate number service, a message alert service, a fax receiving service, and a paging service.

14. The computer-implemented method of claim 12 wherein the second communication option includes a second enable option for enabling or disabling the second communication service.

15. The computer-implemented method of claim 14 wherein the second communication option includes a routing option.

16. The computer-implemented method of claim 15 wherein the forwarding number includes a plurality of numbers, and wherein the second routing option includes a plurality of routings.

17. A data structure for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services, said communication options include parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services, said plurality of communication services comprising a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network, said communication options being accessible via display terminals coupled to said data-centric network and via telephones coupled to said telephony-centric network, said data structure for use with:

a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber; said data structure comprising:

a single graphical menu for displaying said communication options for each of said communication services at the same time, wherein said single graphical menu comprises at least a first display area for showing a first communication service and a first

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communication option associated with said first communication service, and a second display area for showing a second communication service and a second communication option associated with said second communication service, the first display area 5 and the second display area being displayed at the same time in said single graphical menu, and wherein the first communication option includes a first enable option for enabling or disabling the first communication service, and wherein the second 10 communication option includes a second enable option for enabling or disabling the second communication service;

said single graphical menu capable of being displayed on one of said display terminals using a computer 15 server coupled to exchange data with said subscriber communication profile database, when said subscriber employs said one of said display terminals to access said computer-implemented control center;

wherein a telephony server is coupled to exchange data 20 with said communication profile database;

an audible representation of said communication options capable of being provided to one of said telephones, using said telephony server, when said subscriber employs said one of said telephones to 25 access said computer-implemented control center;

a first change to at least one of said communication options received from said subscriber via said one of said display terminals at said computer server, said first change to said communication options pertain- 30 ing to either said voice telephone service or said e-mail service;

wherein said first change is updated to said account in said subscriber communication profile database, thereby resulting in a first updated subscriber communication 35 profile database, and wherein subsequent messages to said subscriber at said unified massaging system, including said voice telephone service, are handled in accordance with said first updated subscriber communication profile database. 40

18. A computer readable media including instructions for a computer-implemented method for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services, said com- 45 munication options include parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services, said plurality of communication services comprising a voice telephone service through a telephony- 50 centric network and an e-mail service through a data-centric network, said communication options being accessible via display terminals coupled to said data-centric network and

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via telephones coupled to said telephony-centric network, said instructions comprising:

providing a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber;

generating a single graphical menu for displaying said communication options for each of said communication services at the same time, wherein said single graphical menu comprises at least a first display area for showing a first communication service and a first communication option associated with said first communication service, and a second display area for showing a second communication service and a second communication option associated with said second communication service, the first display area and the second display area being displayed at the same time in said single graphical menu, and wherein the first communication option includes a first enable option for enabling or disabling the first communication service, and wherein the second communication option includes a second enable option for enabling or disabling the second communication service;

visually displaying said single graphical menu on one of said display terminals, using a computer server coupled to exchange data with said subscriber communication profile database, when said subscriber employs said one of said display terminals to access said computer-implemented control center;

providing a telephony server coupled to exchange data with said communication profile database;

audibly representing said communication options to one of said telephones, using said telephony cerier, when said subscriber employs said one of said telephones to access said computer-implemented control center;

receiving from said subscriber via said one of said display terminals at said computer server a first change to at least one of said communication options, said first change to said communication options pertains to either said voice telephone service or said e-mail service; and

updating said first change to said account in said subscriber communication profile database, thereby resulting in a first updated subscriber communication profile database, wherein subsequent messages to said subscriber at said unified messaging system, including said voice telephone service, are handled in accordance with said first updated subscriber communication profile database.

*   *   *   *   *

EXHIBIT 3

TO

RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS

US006430289B1

(12) **United States Patent**
Liffick

(10) **Patent No.:** **US 6,430,289 B1**
(45) **Date of Patent:** **Aug. 6, 2002**

(54) **SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK**

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(73) Assignee: **Microsoft Corporation**, Redmond, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/291,693

(22) Filed: **Apr. 13, 1999**

(51) Int. Cl.[7] H04M 1/00
(52) U.S. Cl. 379/900; 379/142.15; 370/352
(58) Field of Search 379/201.06, 209.07, 379/201.08, 201.1, 210.11, 142.15, 196, 197, 198, 199, 900; 370/352, 353, 354

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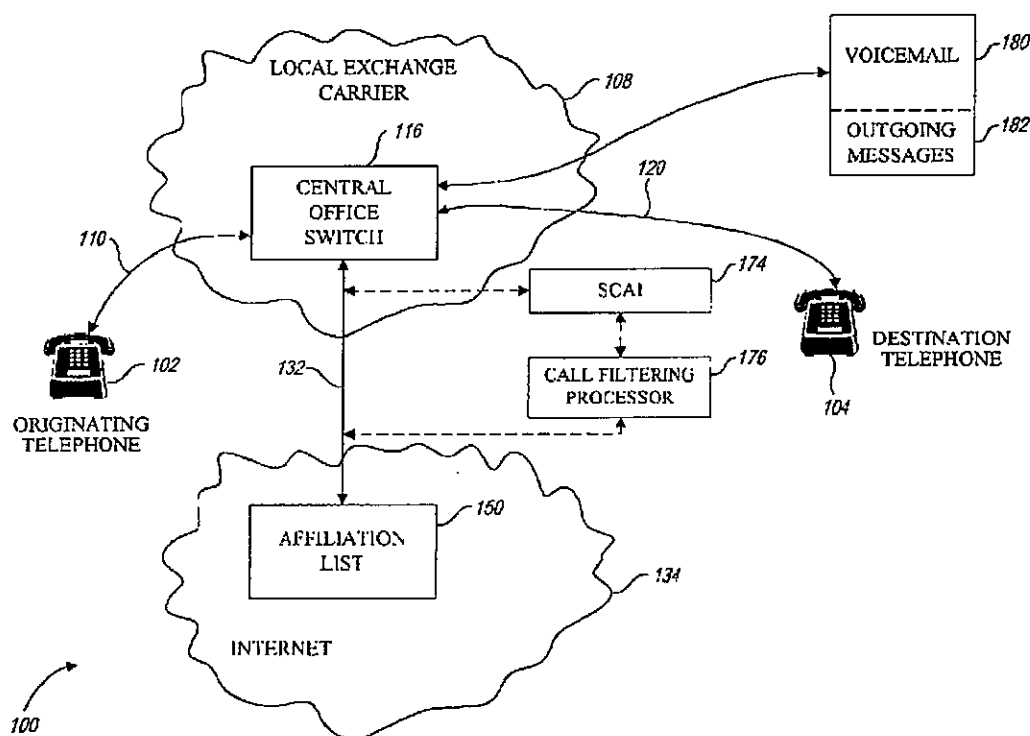6,229,883 B1 * 5/2001 Kakizaki et al. 379/93.23

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Primary Examiner—Craighton Smith
(74) *Attorney, Agent, or Firm*—Workman, Nydegger, Seeley

(57) **ABSTRACT**

A telecommunication system combines telephone technology and computer network technology to monitor a caller and callee's computer activity and to access call processing criteria selected by the caller and callee and stored on the computer network. A component of the telephone system, such as a central office switch, accesses the caller and callee call processing criteria. The system evaluates the call processing criteria and, when conditions for both caller and callee are met, the telephone system initiates a telephone call between the caller and callee. The call processing criteria may include accepting all calls, no calls, or calls only from specified parties. In addition, the call processing criteria can vary in accordance with the time of day or an individual's personal preferences, or status, such as when an individual is in a meeting. A user's computer activity may also be monitored and the computer status as idle or active may be reported to the computer network as part of the call processing criteria.

20 Claims, 10 Drawing Sheets

ABS00000041

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Name	Bob Smith
Subscriber Name	bobxyz@msn.com
Phone 1	(425) 555-1234
Phone 2	(425) 555-1235

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Name	Jim Smith
Subscriber Name	NONE
Phone 1	(206) 555-1236

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Name	John Adams
Subscriber Name	johnxyz@aol.com
Email Alias	atom smasher xyz
Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239

Fig. 6

Name	Bob Smith
Subscriber Name	bobxyz@msn.com
Phone 1	(425) 555-1234
Phone 2	(425) 555-1235
Status	Allowed

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Name	Jim Smith
Subscriber Name	NONE
Phone 1	(206) 555-1236
Status	Blocked

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Name	John Adams
Subscriber Name	johnxyz@aol.com
Email Alias	atom smasher xyz
Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239
Status	Conditional
Phone 1	-	Allowed
Phone 2	-	Allowed 9:00 a.m. - 11:30 a.m.
Phone 3	-	Blocked

Fig. 7

Fig. 8

Fig. 9

Fig. 10

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SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK

TECHNICAL FIELD

The present invention is directed generally to telecommunications and, more particularly, to a system and method for establishing a telephone communication link using status reporting information from an independent computer network.

BACKGROUND OF THE INVENTION

Telephone communication systems have increased in both size and complexity. Early telephone systems required a human operator to manually connect an originating telephone with a destination telephone. With the introduction of automatic switching technology, the need for human operators to connect each and every call disappeared. However, even automated switches did not provide the wide range of features available on most telephone systems, such as voicemail, caller identification, call waiting, call forwarding, three-way calling and the like. Most telephone systems today include these features and allow the customer to select one or more features to customize their telephone service. With features such as voicemail, the telephone switching system must recognize when the destination telephone is either busy or remains unanswered. If either of these conditions occur, the calling party is routed to the voicemail service associated with the destination telephone.

Despite these improvements, telephone systems are incapable of determining when a particular recipient (i.e., a callee) may be available to receive a call. The caller has no choice but to place a call to the destination telephone and hope that the callee answers. Alternatively, the caller may leave a voicemail indicating a specific time at which the caller will place yet another call. This is an undesirable activity since it requires multiple calls, thus utilizing telecommunication capabilities in an inefficient manner. In addition, repeated or failed attempts to actually reach the callee are a waste of human resources since the parties must often call back and forth to each other a number of times before actually reaching the desired party. Therefore, it can be appreciated that there is a significant need for a system and method that can establish a telephone communication link when both parties are available to communicate. The present invention provides this and other advantages as will be apparent from the following detailed description and accompanying figures.

SUMMARY OF THE INVENTION

A system to specify user-selectable criteria for call processing is implemented on a telephone system, such as a public switched telephone network (PSTN). The user-specified call processing criteria is stored on a network that is accessible by the user for data entry and/or editing, and is also accessible by the PSTN to determine whether call processing criteria exists for the particular caller. The Internet provides a readily available data structure for storage of the user-selectable call processing criteria. The user can establish a database stored on the Internet in association with the user's telephone number and indicating the user-selectable call processing criteria for one or more potential callers.

The caller may be identified by caller identification data, such as automatic number identification (ANI). Based on the

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destination telephone number and the caller identification data, the PSTN accesses the Internet and examines an affiliation list corresponding to the destination telephone number. If the caller identification data is present in the affiliation list, the call may be processed in accordance with the user-specified criteria for that particular caller.

Both the caller and callee can specify user-selectable call processing criteria. The potential callee can specify call processing criteria for all incoming calls, such as providing a list of individuals from whom the person will accept calls, a list of individuals from whom the person will not accept calls, or conditional criteria, such as accepting or blocking calls during certain times of day or during certain periods of activity, such as when the user may be otherwise occupied and unwilling to accept an incoming call. In addition, the potential callee's computer activity may be monitored and the status of the computer as idle or active may be reported to the computer network. The caller indicates a desire to establish a communication link with the callee. The computer network accesses the caller's call processing criteria and the callee's call processing criteria. The call processing criteria for both the caller and callee are analyzed and when all conditions are met, a telephone communication link is established between an originating telephone associated with the caller and a destination telephone associated with the callee.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a computer system that includes components to implement the system of the present invention.

FIG. 2 is a functional block diagram outlining the operation of the present invention.

FIG. 3 is a functional block diagram of an alternate telecommunications configuration implementing the present invention.

FIG. 4 is a functional block diagram of another alternative telecommunications configuration implementing the present invention.

FIG. 5 is a functional block diagram providing details of the affiliation list of the system of FIG. 2.

FIG. 6 illustrates sample data provided in the list of FIG. 5.

FIG. 7 illustrates additional sample data provided in the list of FIG. 3.

FIG. 8 is a flowchart illustrating the operation of the system of FIG. 2.

FIG. 9 is a functional block diagram illustrating the system of the present invention to process a call in accordance with both a caller and callee call processing criteria.

FIG. 10 is a flowchart illustrating the operation of the system of FIG. 9.

DETAILED DESCRIPTION OF THE INVENTION

Existing telephone technology does not provide the telephone subscriber with a technique for controlling access to the user's telephone. Features such as caller ID identify the caller, but do not control access to the user's telephone. Thus, the conventional telephone system forwards the user to extreme options. The user may answer all incoming calls or may choose not to answer any incoming calls. However, the present invention provides selective options in between these two extremes. The present invention combines telephone technology with Internet technology to allow the user

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to "filter" incoming calls based on user-selected criteria. In particular, the user may establish a series of lists, stored on the Internet in association with the user's telephone, to filter incoming calls and thereby control access to the user's telephone. In addition, it is possible to monitor the activity or status of both a caller and a callee and establish a communication link between the caller's telephone and the callee's telephone when status data indicates that both are available for a telephone call.

FIG. 1 and the following discussion are intended to provide a brief, general description of a suitable computing environment in which the invention may be implemented. Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by a personal computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

With reference to FIG. 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a conventional personal computer 20, including a processing unit 21, a system memory 22, and a system bus 23 that couples various system components including the system memory to the processing unit 21. The system bus 23 may be any of several types of bus structures, including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. The system memory 22 includes read only memory (ROM) 24 and random access memory (RAM) 25. A basic input/output system 26 (BIOS), containing the basic routines that helps to transfer information between elements within the personal computer 20, such as during start-up, may be stored in ROM 24.

The personal computer 20 further includes input/output devices 27, such as a hard disk drive 28 for reading from and writing to a hard disk, not shown, a magnetic disk drive 29 for reading from or writing to a removable magnetic disk 30, and an optical disk drive 31 for reading from or writing to a removable optical disk 32 such as a CD ROM or other optical media. The hard disk drive 28, magnetic disk drive 29, and optical disk drive 31 are connected to the system bus 23 by a hard disk drive interface 33, a magnetic disk drive interface 34, and an optical drive interface 35, respectively. The drives and their associated computer-readable media provide nonvolatile storage of computer readable instructions, data structures, program modules and other data for the personal computer 20. Although the exemplary environment described herein employs a hard disk, a removable magnetic disk 30 and a removable optical disk 32, it should be appreciated by those skilled in the art that other types of computer readable media which can store data that is accessible by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, random access memories (RAMs), read only memories (ROM), and the like, may also be used in the exemplary operating environment. Other I/O devices 27, such as a

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display 36, keyboard 37, mouse 38, and the like may be included in the personal computer 20 and function in a known manner. For the sake of brevity, other components, such as a joystick, sound board and speakers are not illustrated in FIG. 1.

The personal computer 20 may also include a network interface 39 to permit operation in a networked environment using logical connections to one or more remote computers, such as a remote computer 40. The remote computer 40 may be another personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the personal computer 20, although only a memory storage device 42 has been illustrated in FIG. 1. The logical connections depicted in FIG. 1 include a local area network (LAN) 43 and a wide area network (WAN) 44. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

When used in a LAN networking environment, the personal computer 20 is connected to the LAN 43 through the network interface 39. When used in a WAN networking environment, the personal computer 20 typically includes a modem 45 or other means for establishing communications over the wide area network 44, such as the Internet. The modem 45, which may be internal or external, permits communication with remote computers 46–50. In a networked environment, program modules depicted relative to the personal computer 20, or portions thereof, may be stored in the remote memory storage device 42 via the LAN 51 or stored in a remote memory storage device 52 via the WAN 44. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

The present invention is embodied in a system 100 illustrated in the functional diagram of FIG. 2. In a typical telephone communication, an originating telephone 102 is operated by the caller to place a call to a destination telephone 104. The originating telephone generates signals that are detected by a central office switch 106 operated by a local exchange carrier (LEC) 108. The LEC 108 is the telephone service provider for the calling party. The originating telephone 102 is coupled to the central office switch 106 via a communication link 110. As those skilled in the art can appreciate, the communication link 110 may be a hard-wired connection, such as a fiber optic, copper wire, or the like.

Alternatively, the communication link 110 may be a wireless communication link if the originating phone 102 is a cellular telephone or some other form of wireless telephone.

Similarly, the destination telephone 104 is coupled to a central office switch 116 operated by a local exchange carrier (LEC) 118. The destination telephone 104 is coupled to the central office switch 116 via a communication link 120. The communication link 120 may be a hard-wired communication link or a wireless communication link, as described above with respect to the communication link 110. The present invention is not limited by the specific form of communication link or central office switch.

The LEC 108 establishes a communication link with the LEC 118. As illustrated in FIG. 2, the communication link between the LEC 108 and the LEC 118 is through a long distance carrier (LDC) 124. The LEC 108 establishes a communication link 126 with the LDC 124 which, in turn, establishes a communication link 128 with the LEC 118. If

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the telephone call from the originating telephone 102 to the destination telephone 104 is not a long distance call, the LDC 124 is not required. In this case, the communication link 126 may couple the LEC 108 directly to the LEC 118. The use of the system 100 with other telephone configurations are illustrated in other figures.

To place a telephone call, the caller activates the originating telephone 102 to dial in the telephone number corresponding to the destination telephone number 104, thereby establishing the communication link 110 with the central office switch 106. In turn, the central office switch 106 establishes the communication link 126 (via the LDC 124, if necessary), thus establishing a communication link with the central office switch 116. In a conventional telephone system, the central office switch 116 establishes the communication link 120 to the destination telephone 104 causing the destination telephone to ring. If the callee picks up the destination telephone, a complete communication link between the originating telephone 102 and the destination telephone 104 has been established. This is sometimes referred to as "terminating" the telephone call. The specific telecommunications protocol used to establish a telephone communication link between the originating telephone 102 and the destination telephone 104 is well known in the art and need not be described herein. The preceding description of techniques used to establish the telephone communication link are provided only as a basis for describing the additional activities performed by the system 100.

With the system 100, the central office switch 116 does not initially establish the telephone communication link 120 with the destination telephone 104 to cause the telephone to ring. Instead, the central office switch 116 establishes a communication link 132 with a computer network 134, such as the Internet. As those skilled in the art can appreciate, the Internet is a vast multi-computer network coupled together by data links having various communication speeds. Although the Internet 134 may use a variety of different communication protocols, a well-known communication protocol used by the Internet is a Transmission Control Protocol/Internet Protocol (TCP/IP). The transmission of data on the Internet 134 using the TCP/IP is known to those skilled in the art and need not be described in greater detail herein.

The central office switch 116 utilizes conventional telephone communication protocols, which may be different from the TCP/IP communication protocols used by the Internet 134. The system 100 includes a communication interface 136 to translate data between the two communication protocols. The communication interface 136 includes a telephone interface portion 138 and an Internet interface portion 140. The telephone interface portion 138 is coupled to the central office switch 116 via the communication link 132 such that communications occurring on the communication link 132 utilize the telephone communication protocol. The Internet interface portion 140 communicates via the Internet using conventional communication protocols, such as TCP/IP.

The communication interface 136 may be implemented on a computing platform that functions as a server. The conventional components of the computing platform, such as a CPU, memory, and the like are known to those skilled in the art and need not be described in greater detail herein. The telephone interface portion 138 may comprise an Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) to communicate with the central office switch 116. The ISDN PRI, which may be implemented on a plug-in computer card, provides information to the tele-

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phone interface portion 138, such as automatic number identification (ANI), dialed number identification service (DNIS), and the like. As is known, ANI provides the telephone number of the caller's telephone (e.g., the originating telephone 102) while the DNIS allows the number the caller dialed (e.g., the destination telephone 104) to be forwarded to a computer system. These data may be considered "keys" which may be used by the system 100 to identify the caller and the callee. Thus, the central office switch 116 provides information which may be used to access the affiliation list 150 for the destination telephone 104.

The Internet interface portion 140 may be conveniently implemented with a computer network card mounted in the same computing platform that includes the ISDN PRI card. However, it is not necessary for satisfactory operation of the system 100 that the interface cards be co-located in the same computing platform. It is only required that the telephone interface portion 138 communicate with the Internet interface portion 140. The Internet interface portion 140 receives the incoming data (e.g., the ANI, DNIS, and the like) and generates Internet compatible commands. The specific form of the Internet commands using, by way of example, TCP/IP, are within the scope of knowledge of one skilled in the art and need not be described herein. As will be described below, data provided by the central office switch 116 will be used to access data on the Internet and use that data to determine the manner in which a telephone call will be processed.

The Internet 134 stores an affiliation list 150, which may be established by the user of the destination telephone 104. Data stored within the affiliation list 150 is accessed by the central office switch 116 to determine the manner in which the call from the originating telephone 102 will be processed. Details of the affiliation list 150 are provided below. The Internet 134 also includes an Internet controller 152 which communicates with a callee computer 154 via a network link 156. The communication between the callee computer 154 and the Internet 134 is a conventional communication link used by millions of computers throughout the world. For example, the callee computer 154 may be a personal computer (PC) containing a communication interface, such as a modem (not shown). The network link 156 may be a simple telephone communication link using the modem to communicate with the Internet 134. The Internet controller 152 functions in a conventional manner to communicate with the callee computer 154 via the network link 156. Although the communication link 132 and the network link 156 are both communication links to the Internet, the network link 156 is a conventional computer connection established over a telephone line, a network connection, such as an Ethernet link, or the like. This conventional network link 156 is significantly different from the communication link 132 between the central office switch 116 and the Internet 134. The central office switch 116 establishes the communication link 132 to access data on the Internet and uses that accessed data to determine how to process an incoming call for the destination telephone 104. The network link 156 is a computer-to-computer connection that may simply use a telephone as the physical layer to establish the network link.

In the system 100, the central office switch 116 receives an incoming call from the originating telephone 102 via the central office switch 106 and, optionally, the LDC 124. Rather than immediately establishing the communication link 120 and generating a ring signal at the destination telephone 104, the central office switch 116 establishes the

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communication link 132 and communicates with the Internet 134 via the communication interface 136. The purpose of such communication is to access the affiliation list 150 and thereby determine the manner in which the user of the destination telephone 104 wishes calls to be processed.

FIG. 3 illustrates the system 100 for a telephone system configuration in which the originating telephone 102 and the destination telephone 104 are both serviced by the same local exchange carrier 108. The originating telephone 102 establishes the communication link 110 with the central office switch 106 in the manner described above. The central office switch 106 establishes the communication link 126 directly with the central office switch 116 without the need for the LDC 124 (see FIG. 2). The central office switch 116 operates in the manner described above. That is, the central office switch 116 does not immediately establish the communication link 120, but does establish the communication link 132 with the Internet 134. For the sake of simplicity, FIG. 3 does not illustrate the communication interface 136. However, those skilled in the art will appreciate that the central office switch 116 accesses the affiliation list 150 via the communication interface 136 (see FIG. 2).

For the sake of simplicity, FIG. 3 also does not show the Internet controller 152 and the callee computer 154. However, those skilled in the art can appreciate that those portions of the system may also be present in the embodiment illustrated in FIG. 3. However, it should be noted that the callee computer 154 and the Internet controller 152 need only be used to edit the affiliation list 150. The call processing by the central office switch 116 does not depend on the presence of the Internet controller 152 or the callee computer 154. That is, the central office switch 116 accesses the affiliation list 150 via the communication interface 136 regardless of the presence of the callee computer 154.

In yet another telephone system configuration, illustrated in FIG. 4, the originating telephone 102 and the destination telephone 104 are not only serviced by the same local exchange carrier 108, but are connected to the same central office switch 116. However, the fundamental operation of the system 100 remains identical to that described above with respect to accessing the affiliation list 150. That is, the originating telephone 102 establishes the communication link 110 with the central office switch 116. However, the central office switch 106 need not establish the communication link 126 with any other central office switch since the destination telephone 104 is also connected to that same central office switch.

In this telephone system configuration, the central office switch 116 accesses the affiliation list 150 on the Internet 134 via the communication link 132 (see FIG. 2) in the manner described above. For the sake of simplicity, FIG. 4 does not illustrate the communication interface 136. However, those skilled in the art will recognize that the communication interface 136 operates to convert communication signals between telephone protocol used by the central office switch 106 and the Internet communication protocol used by the Internet 134. In addition, FIG. 4 also does not illustrate the Internet controller 152 and the callee computer 154. As noted above with respect to FIG. 3, the Internet controller 152 and callee computer 154 are not necessary for proper operation of the system 100. The callee computer 154 is typically used in the system 100 to edit the affiliation list 150.

The affiliation list 150 is illustrated in greater detail in the functional block diagram of FIG. 5. The affiliation list comprises a series of sublists, illustrated in FIG. 3 as a

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forward list 160, a reverse list 162, a block list 164, and an allow list 166. The forward list 160 contains a list of Internet subscribers whose Internet activity a user wishes to monitor. This list is sometimes referred to as a "buddy" list. When the user operates the callee computer 154 on the Internet 134, the Internet controller 152 accesses the forward list 160 via an affiliation list input/output (I/O) interface 170 to determine which Internet subscribers contained within the forward list are currently active on the Internet 134. In conventional Internet operation, the Internet controller 152 sends a message to the callee computer 154 indicating which Internet subscribers on the forward list 160 are currently active on the Internet 134.

The forward list 160 is a list of Internet subscribers whose activity is reported to the user. Other Internet subscribers may have their own forward list (not shown) and may monitor the Internet activity of the user. When the user accesses the Internet 134 with the callee computer 154, that activity can be monitored by others. With the system 100, it is possible to determine who is monitoring the user's Internet activity. The reverse list 162 contains a list of Internet subscribers who have placed the user in their forward list. That is, the reverse list 162 contains a list of Internet subscribers who have placed the user in their buddy list. With the reverse list 162, the user can determine who is monitoring his Internet activity.

The block list 164 contains a list of Internet subscribers that the user does not want to monitor his Internet activity. That is, the user's Internet activity will not be provided to any Internet subscriber contained in the block list 164. Thus, even if a particular Internet subscriber has placed the user on their forward list, the presence of that particular Internet subscriber's name on the block list 164 will prevent the user's Internet activity from being reported to the particular Internet subscriber. The use of the block list 164 provides certain security assurances to the user that their Internet activity is not being monitored by any undesirable Internet subscribers.

The allow list 166 contains a list of Internet subscribers for whom the user may wish to communicate with but whose Internet activity the user does not wish to monitor.

The system 100 combines the capabilities of the affiliation list 150 with telephone switching technology to filter incoming calls to the destination telephone 104. For example, the user may specify that only calls from Internet subscribers contained in the forward list 154 may contact the user via the destination telephone 104. Alternatively, the user may specify that a calling party whose name is contained in the forward list 160 or the allow list 166 may place a call to the destination telephone 104. As will be discussed in greater detail below, the system 100 allows the user to create general conditional processing, such as blocking calls or allowing calls. However, the user can also create specific conditional processing for individual callers or based on the user's current status or preferences.

The central office switch 116 accesses the affiliation list 150 via the communication link 132 and determines whether the calling party is in a list (e.g., the forward list 160) that the user wishes to communicate with. If the calling party is contained within an "approved" list, the central office switch 116 establishes the communication link 120 and sends a ring signal to the destination telephone 104. Thus, the user can pick up the telephone with the knowledge that the calling party is an individual with whom the user wishes to communicate.

Conversely, if the calling party is not contained within an approved list, such as the forward list 160 or the allow list

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166, the central office switch 116 will not establish the communication link 120 with the destination telephone 104. Thus, the user will not be bothered by undesirable phone calls. In one embodiment, the central switch office simply will not establish the communication link 120 and the calling party will recognize that the call did not go through. Alternatively, the central office switch 116 may generate a signal indicating that the destination telephone 104 is busy. In this alternative embodiment, the calling party will receive a busy signal on the originating telephone 102. Thus, the user has the ability to filter incoming calls by creating a list of those individuals with whom the user wishes to communicate.

It should be noted that the affiliation list 150 may be dynamically altered by the user to add or delete individuals, change individuals from one list to another, or to change the call processing options for a particular list depending on the user's preferences. For example, the user may want to accept all calls from any source at certain times of the day. Under these circumstances, the user can edit the allow list 166 to accept calls from any calling party. Alternatively, the user may still maintain the block list 164 such that calls will not be processed from certain specified parties even if the user is willing to accept calls from any other source. Under other circumstances, the user may not wish to communicate with any individuals. In this instance, the user may indicate that all calling parties are on the block list 164. Thus, the central office switch 116 will access the Internet 134 in real-time and review data in the affiliation list 150 to thereby process incoming calls for the user in accordance with the rules present in the affiliation list.

The discussion above provides examples of the central office switch 116 processing calls from a calling party in accordance with their presence or absence of certain lists in the affiliation list 150. For example, a call from a party on the forward list 160 will be connected to the destination telephone 104 (see FIG. 2) while a call from a party on the block list 164 will not be put through to the destination telephone. However, the system 100 also allows the selection of call processing options on an individual basis rather than simply on the presence or absence in a particular list. For example, the user can edit the allow list 166 to specify that certain individuals are "allowed" while other individuals may be allowed, conditionally allowed, or blocked all together. If the individual calling party has an associated status indicating that they are allowed, the central office switch 116 will process the incoming call and connect it to the destination telephone 104. If the individual calling party has an associated blocked status, the central office switch 116 will not process the call and will not connect it to the destination telephone 104.

Furthermore, the user may attach conditional status to individual callers or to calling lists. Conditional status may be based on factors, such as the time of day, current availability of the user, work status, or the like. For example, the user may accept calls from certain work parties during specified periods of the day (e.g., 9:00 a.m.–11:00 a.m.), block calls from selected calling parties during other periods of time (e.g., 12:00–1:00 p.m.), or allow calls during a business meeting only from certain calling parties (e.g., the boss). These conditional status criteria may be applied to individuals or to one or more lists in the affiliation list 150.

FIG. 6 illustrates sample data entries in the allow list 166. The allow list 166 may include data, such as a name, Internet subscriber name, and one or more phone numbers associated with the individual data entry. It should be noted that the calling party need not have an Internet subscriber name for

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proper operation of the system 100. That is, the central office switch 116 accesses the allow list 166 utilizing the calling party number and need not rely on any email addresses or other Internet subscriber identification for proper operation. The allow list 166 may also include an email alias in addition to or in place of the Internet subscriber name. Some Internet subscribers prefer to "chat" with other subscribers utilizing an alias rather than their actual Internet subscriber name. The data of FIG. 6 illustrates one possible embodiment for the allow list 166. However, those skilled in the art can appreciate that the allow list 166 may typically be a part of a large database (not shown). Database operation is well known in the art, and need not be described in greater detail herein. The database or other form of the forward list 160 may be satisfactorily implemented using any known data structure for storage of data. For example, the various lists (e.g., the allow list 166, the reverse list 162, the block list 164 and the allow list 166) may all be integrated within a single database structure. The present invention is not limited by the specific structure of the affiliation list 150 nor by the form or format of data contained therein.

Rather than incoming call filtering on the basis of presence in a particular list, such as the allow list 166, as illustrated in FIG. 6, the affiliation list 150 may contain status data on an individual basis. In this event, the central office switch 116 (see FIG. 2) processes the incoming call in accordance with the designated status for that individual. In the example illustrated in FIG. 7, the affiliation list 150 contains one individual with an "allowed" status, one individual with a "blocked" status, and one individual with a "conditional" status based on user-selected criteria. In the example of FIG. 7, the user-selected criteria may be based on the particular phone from which the call is originating as well as the time of day in which the call is originated. For example, the user may wish to allow all calls from a particular number, such as an caller's work number. However, calls from another number, such as the caller's home phone, may be blocked. Other calls, such as from a caller's cellular telephone, may be allowed only at certain times of day. FIG. 7 is intended to illustrate some of the call processing options that are available to the user. As can be appreciated, a variety of different conditional status criteria may be applied to one or more potential calling parties. However, a common feature of the system 100 is that the telecommunication system. (e.g., the central office switch 116) determines calling pal status on the basis of information stored on the Internet and processes the incoming call in accordance with the user-specified criteria. Moreover, the system 100 operates in real-time to process the incoming call in accordance with the user-specified criteria.

The Internet 134 may be conveniently used as a storage area for the caller specified criteria. The advantage of such data storage on the Internet is that the data is widely accessible to the user. This provides a convenient mechanism for entering new caller data or editing existing caller data. The user can access the affiliation list 150 with the callee computer 154 via the network link 156. In contrast, the central office switch 116 may access the affiliation list 150 via the communication link 132, which may typically be a high-speed communication link. In addition, FIGS. 2, 4, and 5 illustrate the central office switch 116 as the telecommunication component that accesses the Internet 134. It is convenient for operational efficiency to have the central office switch (e.g., the central office switch 116) to which the destination telephone 104 is connected perform such Internet access. It is at this stage of the telephone call processing that the telecommunication system may most conveniently

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determine the user-specified caller status. However, those skilled in the art will recognize that the status check may be performed by other portions of the telecommunication system, such as the central office switch 106, the LDC 124, or the like. Thus, the present invention is not limited by the particular telecommunication component that establishes the communication link with a network which the user-specified caller status data is stored.

In addition, the system 100 can be readily implemented as an "add-on" component of the telecommunication system and need not be integrated with the central office switch 116. For example, the conventional central office switch provides the ability to divert calls based on certain call conditions, such as "Call Forward No Answer," which may be used to divert an incoming call to voicemail or "Call Forward Busy," which may also divert the incoming call to voice-mail. To implement the system 100 with an add-on processor, the system may optionally include a Switch to Computer Applications Interface (SCAI) 174 and a call processor 176. The dashed lines of FIG. 4 are intended to illustrate an alternative configuration of the system 100. This alternative configuration can also be implemented with other telephone system configurations, such as illustrated in FIGS. 2 and 3. The SCAI 174 is a telecommunication protocol that allows switches to communicate with external computers. Data, such as caller and callee telephone numbers, and status information, such as Call Forward Busy, are provided to the SCAM 174 by the central office switch 116.

The call processor 176 performs the functions described above to process the call in accordance with the user-specified criteria. That is, the call processor 176 receives caller and callee data from the SCAI 174 and accesses the affiliation list 150 via the communication interface 136 (see FIG. 2). The call processor 176 uses user-specified call processing criteria to generate instructions for the central office switch 116. The instructions are provided to the central office switch 116 via the SCAI 174. Those skilled in the art will appreciate that the SCAI 174 is but one example of the Open Application Interface (OAI) that can be used with the central office switch 116.

As noted above, the system 100 can process a call intended for the destination telephone 104, block a call, or generate a busy signal at the originating telephone 102. However, the system 100 also operates with voicemail and permits a number of different customized outgoing messages. FIG. 4 illustrates a voicemail system 180 having a storage area containing one or more outgoing messages 182. For example, the voicemail system 180 can play an outgoing message 182 informing the caller that "the party you are calling only accepts calls from designated callers. Please leave a message." If calls are blocked only at certain times, the outgoing message 182 can say "the party you are calling does not accept calls between 11:30 a.m. and 1:00 p.m. Please leave a message or call back after 1:00 p.m." The outgoing message can also reflect callee availability by playing a message such as "The party you are calling is in a meeting. Please leave a message or call back in X minutes" where X reflects the amount of time before the meeting is expected to end. That information can be manually provided to the affiliation list 150 by the user or automatically derived from a computerized scheduling program on, by way of example, the callee computer 154 (see FIG. 2).

Computerized scheduling programs, such as Microsoft® D Schedule Plus, can be used on the callee computer 154 (see FIG. 2). It is known that such scheduling programs can be accessed via a computer network or downloaded to a hand-held computing device to track appointments. The

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system 100 can access such computerized scheduling programs and download appointments and scheduled meetings into the affiliation list 150. The outgoing messages 182 can be automatically selected on the basis of the user's computerized schedule. Thus, the system 100 permits the user to schedule his day (e.g., meetings, lunch time, in office/available for calls, in office/unavailable for calls, etc.) on a computerized scheduling program and to process calls in accordance with the computerized schedule and even select outgoing messages automatically based on the user's schedule.

The operation of the system 100 is illustrated in the flowchart of FIG. 7. At a start 200, the calling party has placed a call from the originating telephone 102 (see FIG. 2) to the destination telephone 104. In step 202, the central office switch 116 has received call data from the originating telephone 102. The received call data includes the destination telephone number of the destination telephone 104 and identification data indicating the originating telephone 102 as the source of the present call. Use of automatic number identification (ANI) is a well-known technique for providing identification data indicating the originating telephone 102 as the source of the present call. While the specific implementation of ANI data, sometimes referred to as caller ID, may not be uniformly implemented throughout the United States, the ANI data is typically delivered between the first and second rings. In the present invention, the central office switch 116 (see FIG. 2) does not initiate a ring signal to the destination telephone 104 until after determining the status of the calling party based on the ANI. In future implementations, telecommunication companies may transmit other forms of caller identification, such as caller name, Internet address, email alias, or the like. The system 100 operates satisfactorily with any form of caller identification. The only requirement for the system 100 is that some form of caller identification be provided. The call is processed in accordance with the user-specified criteria in the affiliation list 150 for the identified caller.

In step 204, the central office switch 116 (see FIG. 2) establishes the communication link 132 with the Internet 134. Although step 204 illustrates the system 100 as actively establishing the communication link 132 with the Internet 134, those skilled in the art will recognize that the system 100 can utilize a continuous high-speed data link between the central office switch and the Internet. Thus, it is not necessary to establish a network link for each and every incoming call processed by the central office switch 116. As previously described, the communication interface 136 translates data between the telephone protocol and the Internet protocol. In step 206, the system 100 accesses the affiliation list 150 for the user (i.e., the called party). In an exemplary embodiment, the telephone number of the destination telephone 104 or other callee identification is used as an index or pointer to a specific location within the database where the affiliation list 150 for the particular user may be found. Database operation in general, and techniques for locating specific items within a database in particular are known to those skilled in the art and need not be described herein.

In decision 210, the system 100 determines whether the caller identification data is on the forward list 160 (see FIG. 3). If the caller identification data is present in the forward list, the result of the decision 210 is YES. In that event, the system 100 proceeds to FIG. 6B where the call is processed in accordance with the rules associated with the forward list 160.

If the caller identification data is not present in the forward list 160 (see FIG. 3), the result of decision 210 is

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NO. In that event, the system 100 moves to decision 212 to determine whether the caller identification data is in the allow list 166. If the caller identification data is present in the allow list 166, the result of decision 214 is YES. In that event, the system 100 proceeds to decision 216 where the call is processed in accordance with the rules associated with the allow list 166. If the caller identification data is not present in the allow list 166, the result of decision 216 is NO.

In decision 218, the system 100 determines whether the caller identification data is present in the reverse list 162. If the caller identification data is present in the reverse list 162, the system 100 proceeds to the step 220 where the call is processed in accordance with the rules associated with the reverse list 162. If the caller identification data is not present in the reverse list, the result of decision 218 is NO. In that event, the system moves to decision 216 to determine whether the caller is present on the block list 164. If the caller is present on the block list 164, the result of decision 222 is YES. In that event, the system proceeds to step 224 where the call is processed in accordance with the rules associated with the block list. If the caller identification data is not present in the block list 164, the result of decision 222 is NO. This indicates that the caller identification data is not present in any of the user-specified lists in the affiliation list 150. In that event, the system moves to step 226 where the call may be processed in accordance with user-specified rules of processing anonymous or unidentified calls. The flowchart of FIG. 8 illustrates the operation of the system 100 with multiple lists wherein the call processing rules are designated for each list. In this embodiment, the call is processed on the basis of the presence or absence of the caller identification data in a particular list. However, as previously discussed, the affiliation list 150 (see FIG. 5B) may include user-specified status criteria for individual callers. In this embodiment, the system 100 processes the call on the basis of the user-specified status criteria associated with the individual caller rather than on the basis of the caller's presence or absence in a specific list. In that event, the system 100 may simply access the user affiliation list (see step 206 in FIG. 7) and process the call in accordance with the user-specified status criteria for the individual caller. If the caller identification data is not present in the affiliation list 160, the call may be processed using user-specified call processing criteria for unidentified callers, as shown in step 226.

Thus, the system 100 allows the user to specify call processing rules for a plurality of different caller lists or for individual callers within a list. The caller lists may be readily edited in accordance with the changing desires of the user. The user may alter the call processing rules in accordance with various times of day, work conditions, or even the personal mood of the user. For example, the user may process all calls during certain times of the day, such as when the user is at work. However, when the user arrives home, subsequent calls may be processed in accordance with a different set of rules, such as accepting no calls during dinner time or after a certain time at night.

These rules may be applied differentially to different ones of the list in the affiliation list 150. For example, the user may accept calls from any calling party on the forward list 160 (see FIG. 3) or the allow list 166 during the evening hours. However, after a certain time at night, the caller may accept calls only from calling parties on the forward list 160. Thus, the system 100 allows great flexibility in the user selection of calling rules and lists. The system 100 allows the user to filter incoming calls in accordance with generalized rules or in accordance with highly specific rules.

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In addition to filtering incoming calls to the destination telephone 104, the system 100 can monitor the status or activity of both the caller and the callee and establish a communication link between the originating telephone 102 and the destination telephone 104 when the status data indicates that both the caller and callee are available for a telephone conversation. The system 100 has been previously described with respect to callee status monitoring and processing of incoming calls in accordance with the user-selected (i.e., the callee-selected) call processing criteria. Similar status monitoring can be performed for the caller. As illustrated in FIG. 9, the system 100 may include a caller computer 184, which is coupled to the Internet via the communication link 132. For the sake of clarity, FIG. 9 illustrates the callee computer 154 and the caller computer 184 as connected to the Internet 134 through a single Internet controller 152. However, those skilled in the art will appreciate that the Internet 134, or any computer network, includes many network controllers that function as a gateway to the network. Thus, the system 100 typically includes a large number of Internet controllers 152.

In addition, for the sake of clarity, Figure illustrates only a single affiliation list 150. However, those skilled in the art will appreciate that separate affiliation lists exist for the originating telephone 102 and the destination telephone 104. The central office switch 116 (or the call processor 176) access the appropriate affiliation list via the network connection 132 and apply the appropriate call processing rules for each telephone.

FIG. 9 also illustrates a keyboard 154a and mouse 154b coupled to the callee computer 154 for use in a conventional fashion. Similarly, the caller computer 184 includes a keyboard 184a and a mouse 184b. The computer operating system, such as the Windows® operating system, is capable of monitoring user activity on the computer. For example, the operating system on the callee computer 154 can detect user activity on the keyboard 154a or the mouse 154b. By monitoring this activity, the operating system can determine the user's status and activate certain software programs, such as a screen saver, when no user activity has been detected for a certain period of time. Under these circumstances, the operating system may determine that the callee computer 154 has entered an "idle" state. Similarly, operating system on the caller computer 184 may perform similar functions to determine user activity on the caller computer. Using the principles of the present invention, the callee computer 154 and the caller computer 184 may report the current status to the affiliation list 150 for each respective computer.

The system 100 can monitor computer activity and generate signals to both the originating telephone 102 and the destination telephone 104 when the callee computer 154 and the caller computer 184 are not in the idle state. The fact that both computers' are not in the idle state indicates that the users of each respective computer may be available for a telephone conversation. In addition, the system 100 can apply call processing rules that may also govern operation of the telephone portion of the system 100. For example, the callee computer 154 may be in an "active" state (as opposed to the idle state) but the user has indicated that he should not be disturbed at the present time. Thus, the central office switch 116 or the call processor 176 accesses the affiliation list 150 for the destination telephone 104 to determine the callee-selected call processing criteria. In addition, the central office switch 116 or the call processor 176 can access the affiliation list 150 for the caller and apply any caller-selected call processing rules. For example, the caller computer 184

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may be in the active state, but the caller status in the affiliation list 150 may indicate that the caller is in a meeting and is, therefore, unavailable for a telephone call with the callee. In this manner, the system 100 can monitor computer activity and determine when the caller and callee may both be available for a telephone call and further applies call processing criteria for both the caller and callee. The call processing criteria for the caller and callee as well as the current status of the callee computer 154 and the caller computer 184 are stored within the respective affiliation lists 150 on the Internet 134. This data may be accessed by the central office switch 116 or the call processor 176 via the network connection 132 in the manner previously described.

In operation, the system allows a caller to indicate a desire to establish a telephone communication link with a specified callee. The caller can use the originating telephone 102 or the caller computer 184 to initiate the call processing by the system 100. The system 100 monitors the caller and callee activities and call processing rules and, when appropriate for both parties, establishes a telephone communication link by sending signals from the central office switch 116 to the originating telephone to generate a ring signal. The central office switch 116 also generates appropriate signals to generate ring signal at the destination telephone 104.

As can be appreciated, the originating telephone 102 communicates with the central office switch 116 using the communication link 110 while the caller computer 184 communicates with the Internet 134 using the communication link 132. The communication link 132 may be a second telephone line, a network connection, such as an Ethernet connection, or the like. If the user has two telephone lines, the telephone number of the telephone (e.g., the destination telephone 104) can be different from the telephone number associated with the computer (e.g., the callee computer 154). However, the system 100 must be aware of an association between the telephone and the computer. This is particularly important if the status of the computer (i.e., idle or active) is used as one of the call processing criteria. The system 100 can monitor the activity of a computer (e.g., the callee computer 154) in order to establish a telephone communication link with an associated telephone (e.g., the destination telephone 104). It is of no value to monitor a user's computer status at one location and call a completely unrelated telephone at a different location. For example, it is of no value to monitor the callee's computer at work and then to call the callee's home telephone number.

In other implementations, such as with a home computer, only a single telephone line may serve the function of both the communication link 110 and the communication link 132. Under these circumstances, the caller may use the caller computer 184 to indicate a desire to establish the telephone communication link and then must terminate the communication link 132 so that the central office switch may generate the appropriate signals on the communication link 110 at a point in time when the callee call processing criteria and the caller call processing criteria are both met. It should be further noted that this implementation will preclude the use of the status (i.e., idle or active) of the caller computer 184 since the communication link 132 is not active.

Similarly, the destination telephone 104 and the callee computer 154 may be connected to the central office switch 116 and the Internet 134 via separate communication links (i.e., the communication link 120 and the communication link 132, respectively). However, the system 100 may also be implemented with a single phone line. The callee may use the callee computer 154 and the communication link 132 to generate or edit the callee call processing criteria in the

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affiliation list 150. However, the user must then terminate the communication link 132 to permit the central office switch 116 to establish the communication link 120. As noted above, a single phone line precludes the use of computer status monitoring (i.e., idle or active) for the callee computer 154 since the status cannot be monitored via the communication link 132.

The operation of the system 100 to establish a communication link with both the originating telephone 102 and the destination telephone 104 is illustrated in the flowchart of FIG. 10 where, at a start 250, it is assumed that the caller and callee both have data in their respective affiliation lists. As previously noted, the affiliation list 150 for each individual may comprise separate sublists, such as illustrated in FIG. 5, or a single data structure containing call processing criteria, such as allowing or blocking individual calls (see FIG. 7) or establishing conditional criteria, such as time restrictions, current user status (e.g., in a meeting), or the current status of the user's computer (e.g., the idle or active status of the callee computer 154). Furthermore, as previously noted, user status can be automatically provided to the affiliation list 150 by a computerized schedule program.

In step 252, the caller indicates a desire to establish a telephone communication link with the callee. In a conventional communication system, the caller picks up the originating telephone and dials the telephone number for the destination telephone 104. However, in accordance with this aspect of the system 100, the caller may indicate the desire to establish a telecommunication link using the caller computer 184 and placing the callee telephone number (i.e., the telephone number of the destination telephone 104) on a call list, such as the forward list 160 (see FIG. 5). By placing the callee on the forward list, the system 100 can access the callee affiliation list to determine whether the callee computer 154 is active on the Internet.

With the callee telephone number (i.e., the telephone number of the destination telephone 102) placed on the call list, the system 100 can determine the call processing criteria of both the caller and the callee, and process the request for a telephone call in accordance with those rules. In step 254, the system 100 establishes a communication link with the Internet 134. As previously noted, the central office switch 116 may directly establish the communication link 132 with the Internet 134 or may use the SCAI 174 and call processor 176 to communicate with the Internet. It should be noted that the telephone portion of the system may have a continuous data link with the Internet via the central office switch 116 or the call processor 176. Thus, it is not necessary to continuously establish and tear down the communication link 132.

In step 258, the system 100 accesses the callee affiliation list 150. In step 260, the system 100 accesses the caller affiliation list 150. As previously noted, the physical location of each affiliation list in unimportant to the satisfactory operation of the system. The only requirement is that the affiliation list is accessible via the computer network, such as the Internet 134.

In decision 262, the system 100 applies the callee call processing criteria and determines whether the present calling conditions meet the callee criteria. This includes testing whether the caller is contained within one of the sublists illustrated in FIG. 5 or if the status associated with the call origination data indicates that the caller is allowed or blocked, or the like. If the present calling conditions do not meet the callee criteria, the result of decision 262 is NO. In that event, the system 100 can return to step 258 to again

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access the callee affiliation list. As those skilled in the art can appreciate, the callee affiliation list may be updated by the callee (typically via the callee computer 154) which may change the result of decision 262.

If the current call does meet the callee call processing criteria, the result of decision 262 is YES. In that event, the system 100 uses the data from the caller affiliation list 150 to determine whether the present call meets the caller call processing criteria. Although the caller indicated a desire to establish a telephone link with the callee, the caller may not be available for an immediate phone call. For example, the caller may have a meeting scheduled to begin, but expects to be available for a phone call following the meeting. The caller can manually set the call processing criteria, such as indicating the desired time of the telephone call. Alternatively, the caller call processing criteria may be automatically supplied to the caller affiliation list 150 through the use of a computerized scheduling program or the like. The system 100 may also monitor the status of the caller computer 184 to determine caller availability. For example, the caller may indicate an availability for a phone call after a predetermined time. The system 100 can detect the change in the state of the caller computer 184 from the idle state to the active state and interpret that as an indication that the caller is now available for a telephone call. The system can apply these conditions individually or in various combinations to determine the availability of the caller and callee. If the call does not meet the caller call processing criteria, the result of decision 264 is NO. In that event, the system 100 can return to step 258 to access the affiliation lists for the callee and caller, respectively, and thus continuously monitor the callee and caller call processing criteria to determine an appropriate time to make a phone call.

If the call does meet the caller call processing criteria, the result of decision 264 is YES. In that event, in step 266 the system 100 causes the central office switch 116 to send the appropriate ring signals to the originating telephone 102 and ring signals to the destination telephone 104. In this manner, the telephone system follows the call processing guidelines of both caller and callee stored on a computer network to control the processing of the call on the telephone network.

Although the example illustrated in FIG. 10 illustrates a continuous process of checking call processing criteria against the current call conditions, those skilled in the art appreciate that other possible actions can be taken by the system 100. For example, the caller may be on the block list 164 (see FIG. 5). In this condition, the call will never meet the callee call processing criteria. The system 100 thus will never establish a communication link. The system 100 can send a message to the caller computer 184 indicating that the callee does not accept calls in this manner and to leave a message on the voicemail system 180. Alternatively, the system 100 can establish a telephone communication link to the originating telephone 102 and provide a similar message. As discussed above with respect to FIG. 4, a variety of voice mail messages can be provided to the user. The system 100 may establish a telephone communication link to the originating telephone 102 and play the appropriate outgoing message 182 (see FIG. 4). As noted above, the system 100 can apply call processing rules derived from any source, such as the current status (e.g., idle or active) of the callee computer 154 or the caller computer 184, the presence or absence on one of the sublists in FIG. 5 (e.g., the block list 164), the status of one party (e.g., the allowed status of the caller), callee or caller status data provided by computerized scheduling systems, or the like. The system 100 advantageously allows multiple forms of call processing criteria to

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be stored in the network, such as the Internet 134, and accessed by the telephone system, such as the central office switch 116 or the call processor 176. Those skilled in the art will also recognize that the embodiment of the system 100 shown in FIG. 9 can be implemented with various telephone system configurations, such as those illustrated in FIGS. 2 and 3, or any other telephone system configuration. Furthermore, the system 100 is not limited by the specific component of the telephone system that establishes the network link 132 with the affiliation list 150. Although FIG. 9 illustrates the central office switch 116 or the call processor 176 as the component that establishes the network link, those skilled in the art will recognize that other components, such as the central office switch 106 (see FIG. 2), the LDC 124, or the like can establish the network link 132. Thus, the system 100 is not limited by the specific component of the telephone communication system that establishes the network link 132.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. For example, the system discussed herein uses, by way of example, the Internet 134 to store the affiliation list 150. However, the system 100 can be implemented with other computer networks or as a portion of a telephone switch, such as the central office switch 116. The telephone service provider can provide a customer with an affiliation list and some means to control the list as a value-added telephone service. The central office switch 116 accesses the internal affiliation list and processes the incoming calls in accordance with the user-specified criteria contained therein. Accordingly, the invention is not limited except as by the appended claims.

What is claimed is:

1. In a system that includes a telephone network and a computer network with one or more users, wherein each user is connected through a user computer the computer network and is logically connected through the computer network to the telephone network, a method of determining when to establish telephone communication between two parties, at least one of whom is a user connected to said computer network, comprising:

at the computer network, receiving information from the telephone network that a first party from whom a call is originating desires to establish telephone communication with a second party;

at the computer network, monitoring activity of a user computer connected to the computer network and associated with the second party;

at the computer network, storing a set of pre-determined rules for determining when the second party is available to take a call from the first party;

at the computer network, using the set of a pre-determined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computer of the second party, to determine when the second party is available to take the call originated by the first party; and

using the information processed at the computer network to facilitate connecting the call originated by the first party through the telephone network to the second party.

2. A method as recited in claim 1, further comprising, at the computer network, monitor activity of a user computer

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connected to the computer network and associated with the first party, wherein using the set of pre-determined rules is also performed using information regarding the monitored activity of the user computer of the first party.

3. A method as recited in claim 1, wherein using the information processed at the computer network to facilitate connecting the call comprises sending control signals to the telephone network to cause the telephone network to connect the call.

4. A method as recited in claim 1, wherein the predetermined rules are associated with an affiliation list of the second party and wherein the first party is referenced by the buddy list.

5. A method as recited in claim 1, wherein monitoring activity of a user computer connected to the computer network and associated with the second party comprises monitoring activity of an input device of the user computer.

6. A method as recited in claim 1, wherein the pre-defined rules specify whether the second party accepts telephone calls from the first party.

7. In a system that includes a telephone network and a computer network with one or more users, and wherein each user is connected through a user computer to the computer network and is logically connected through the computer network to the telephone network, a computer program product comprising:

a computer readable medium for carrying computer executable instructions for implementing at the computer network a method of determining when to establish telephone communication between two parties, at least one of whom is a user connected to said computer network, and wherein said method comprises:

at the computer network, receiving information from the telephone network that a first party from whom a call is originating desires to establish telephone communication with a second party;

at the computer network, monitoring activity of a user computer connected to the computer network and associated with the second party;

at the computer network, storing a set of predetermined rules for determining when the second party is available to take a call from the first party; and

at the computer network, using the set of predetermined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computer of the second party, to determine when the second party is available to take the call originated by the first party.

8. A computer program product as recited in claim 7, wherein the method further comprises using the information processed at the computer network to facilitate connecting the call originated by the first party through the telephone network to the second party.

9. A computer program product as recited in claim 7, wherein the pre-determined rules specify whether the second party accepts telephone calls from the first party.

10. A computer program product as recited in claim 7, wherein the pre-determined rules define how the telephone call is to be processed based on the time of the day of the telephone call.

11. A computer program product as recited in claim 7, wherein the method further comprises, at the computer network, monitoring activity of a user computer connected to the computer network and associated with the first party, wherein using the set of pre-determined rules is also performed using information regarding the monitored activity of the user computer of the first party.

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12. In a system that includes a telephone network and a computer network with one or more users, and wherein each user is connected through a user computer to the computer network and is logically connected through the computer network to the telephone network, a method of determining when to establish telephone communication between two parties, each of whom is a user connected to said computer network, comprising:

at the computer network, monitoring activity of the user computers associated with both a first and a second party;

at the computer network, receiving information from the telephone network that the first party is originating a call to the second party;

at the computer network, storing a set of pre-determined rules for determining when the second party is available to take a call from the first party;

at the computer network, using the set of pre-determined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computers of the first and second parties, to determine when the second party is available to take the call originated by the first party; and

using the information processed at the computer network to facilitate connecting the call originated by the first party through the telephone network to the second party.

13. A method as recited in claim 12, wherein using the information processed at the computer network to facilitate connecting the call comprises sending control signals to the telephone network to cause the telephone network to connect the call.

14. A method as recited in claim 12, wherein the pre-determined rules are associated with an affiliation list of the second party and wherein the first party is referenced by the buddy list.

15. A method as recited in claim 12, wherein monitoring activity of a user computer connected to the computer network and associated with the second party comprises monitoring activity of an input device of the user computer associated with the second party.

16. A method as recited in claim 12, wherein the pre-defined rules specify whether the second party accepts telephone calls from the first party.

17. In a system that includes a telephone network and a computer network with one or more users, and wherein each user is connected through a user computer to the computer network and is logically connected through the computer network to the telephone network, a computer program product comprising:

a computer readable medium for carrying computer executable instructions for implementing at the computer network a method of determining when to establish telephone communication between two parties, each of whom is a user connected to said computer network, wherein said method comprises:

at the computer network, monitoring activity of the user computers associated with both the first and second parties;

at the computer network, receiving information from the telephone network that the first party is originating a call to the second party;

at the computer network, storing a set of pre-determined rules for determining when the second party is available to take a call from the first party; and

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at the computer network, using the set of predetermined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computers of the first and second parties, to determine when the second party is available to take the call originated by the first party.

18. A computer program product as recited in claim 17, wherein the method further comprises using the information processed at the computer network to facilitate connecting

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the call originated by the first party through the telephone network to the second party.

19. A computer program product as recited in claim 17, wherein the pre-determined rules specify whether the second party accepts telephone calls from the first party.

20. A computer program product as recited in claim 17, wherein the pre-determined rules define how the telephone call is to be processed based on the time of the day of the telephone call.

*   *   *   *   *

EXHIBIT 4

TO

RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS

US006421439B1

(12) **United States Patent** (10) Patent No.: **US 6,421,439 B1**

Liffick (45) Date of Patent: **Jul. 16, 2002**

(54) **SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/275,689**

(22) Filed: **Mar. 24, 1999**

(51) Int. Cl.[7] H04M 3/42; G06F 9/46
(52) U.S. Cl. **379/211.02**; 379/201.02; 709/328
(58) Field of Search 379/201.01, 201.02, 379/201.03, 188, 196, 197, 198, 199, 200, 210.02, 210.03, 211.01, 211.02, 900; 370/352; 709/311, 312, 320, 328

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(74) *Attorney, Agent, or Firm*—Workman, Nydegger, Seeley

(57) **ABSTRACT**

A telecommunication system combines telephone technology and Internet technology to establish one or more user-specified affiliation lists. The affiliation lists are stored on the Internet and are accessible by the user and by the telecommunication portion of the system. The affiliation lists are used to process incoming calls to the user's destination telephone number. A central office switch receives the call being directed to the destination telephone number and uses a communication link with the Internet to access the user's affiliation lists. The incoming call is processed in accordance with the user-specified rules in the affiliation lists. The user may accept all incoming calls, no incoming calls, or incoming calls only from specified parties. The call processing rules may be readily edited by the user and can also include alternative call processing rules that vary in accordance with the time of day or with the user's personal desires.

51 Claims, 8 Drawing Sheets

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Name	Bob Smith
Subscriber Name	bobxyz@msn.com
Phone 1	(425) 555-1234
Phone 2	(425) 555-1235

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Name	Jim Smith
Subscriber Name	NONE
Phone 1	(206) 555-1236

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Name	John Adams
Subscriber Name	johnxyz@aol.com
Email Alias	atom smasher xyz
Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239

Fig. 6

Name	Bob Smith
Subscriber Name	bobxyz@msn.com
Phone 1	(425) 555-1234
Phone 2	(425) 555-1235
Status	Allowed

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.
.

Name	Jim Smith
Subscriber Name	NONE
Phone 1	(206) 555-1236
Status	Blocked

.
.
.

⌐ 150

Name	John Adams
Subscriber Name	johnxyz@aol.com
Email Alias	atom smasher xyz
Phone 1	(703) 555-1237
Phone 2	(703) 555-1238
Phone 3	(703) 555-1239
Status	Conditional
Phone 1 -	Allowed
Phone 2 -	Allowed 9:00 a.m. - 11:30 a.m.
Phone 3 -	Blocked

Fig. 7

Fig. 8

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SYSTEM AND METHOD FOR USER AFFILIATION IN A TELEPHONE NETWORK

TECHNICAL FIELD

The present invention is directed generally to telecommunications and, more particularly, to a system and method for user selection of individual affiliations in a telephone network.

BACKGROUND OF THE INVENTION

Advances in telecommunication technology provide a user with a broad variety of communication options. For example, advances in telephone communication, including wireless telephone and cellular telephone, allow almost instantaneous communication between virtually any two locations on earth. Telephone service providers typically offer wide range of options, such as voice mail, caller identification, call waiting, call forwarding, three-way calling, and the like. The telephone service subscriber can customize their own telecommunications service with the selection of one or more options.

Despite these advances, the user is still limited in determining with whom the user wishes to speak and when the user wishes to speak with certain parties or, at the user's option, not speak with certain parties. Although caller identification (ID) can identify the calling party, caller ID does not always correctly identify the caller. For example, if the number identification data is not transmitted along with the call, the caller ID device indicates that caller data is "unavailable." In addition, the user must still respond to the ringing telephone and view the caller identification box to determine whether or not to answer the telephone. Thus, existing telephone technologies do not always provide user with the desired degree of control over incoming calls.

Therefore, it can be appreciated that there is a significant need for system and method to control incoming calls to a user's telephone. The present invention provides this and other advantages as will be apparent from the following detailed description and accompanying figures.

SUMMARY OF THE INVENTION

A system to specify user-selectable criteria for call processing is implemented on a conventional telephone system, such as a public switched telephone network (PSTN). The user-specified call processing criteria is stored on a network that is accessible by the user for data entry and/or editing, and is also accessible by the PSTN to determine whether call processing criteria exists for the particular caller. The Internet provides a readily available data structure for storage of the user-selectable call processing criteria. The user can establish a database stored on the Internet in association with the user's telephone number and indicating the user-selectable call processing criteria for one or more potential callers.

The caller may be identified by caller identification data, such as automatic number identification (ANI). Based on the destination telephone number and the caller identification data, the PSTN accesses the Internet and examines an affiliation list corresponding to the destination telephone number. If the caller identification data is present in the affiliation list, the call may be processed in accordance with the user-specified criteria for that particular caller.

The user (i.e., the called party) can specify user-selectable call processing criteria for all incoming calls, incoming calls from selected callers, and may further apply conditional

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criteria based on user preferences. For example, the user may select all calls during certain times of the day, calls from selected parties during other specified times of the day, and no calls during other times of the day. The user-selectable call processing criteria may be readily edited by the user and may be applied to multiple phone numbers associated with a particular caller.

The system may be readily implemented on current telephone systems with no significant modifications. For example, the system may apply the user-specified call processing criteria at the central office switch to which the destination telephone is coupled. All call processing prior to arrival at that central office switch is performed in accordance with conventional telecommunication techniques and standards. When a call arrives at the central office switch coupled to the destination telephone, the central office switch does not immediately establish a communication link with the destination telephone, but accesses the user-specified call processing criteria on the Internet and applies the call processing criteria. If the call is allowed, the central office switch establishes a communication link with the destination telephone in a conventional fashion to complete the telephone call. If the call is not allowed, the central office switch will not process the call, and may generate a busy signal to indicate that the user is unavailable.

The system may also be implemented at other points in the telecommunication network, such as a central office switch at the originating telephone. In addition, the user-specified call processing criteria may be stored on other forms of networks that are accessible to both the user (i.e., the called party) and the telecommunication system.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a computer system that includes components to implement the system of the present invention.

FIG. 2 is a functional block diagram outlining the operation of the present invention.

FIG. 3 is a functional block diagram of an alternate telecommunications configuration implementing the present invention.

FIG. 4 is a functional block diagram of another alternative telecommunications configuration implementing the present invention.

FIG. 5 is a functional block diagram providing details of the affiliation list of the system of FIG. 2.

FIG. 6 illustrates sample data provided in the list of FIG. 5.

FIG. 7 illustrates additional sample data provided in the list of FIG. 3.

FIG. 8 is a flowchart illustrating the operation of the system of FIG. 2.

DETAILED DESCRIPTION OF THE INVENTION

Existing telephone technology does not provide the telephone subscriber with a technique for controlling access to the user's telephone. Features such as caller ID identify the caller, but do not control access to the user's telephone. Thus, the conventional telephone system forwards the user to extreme options. The user may answer all incoming calls or may choose not to answer any incoming calls. However, the present invention provides selective options in between these two extremes. The present invention combines telephone technology with Internet technology to allow the user to "filter" incoming calls based on user-selected criteria. In

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particular, the user may establish a series of lists, stored on the Internet in association with the user's telephone, to filter incoming calls and thereby control access to the user's telephone.

FIG. 1 and the following discussion are intended to provide a brief, general description of a suitable computing environment in which the invention may be implemented. Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by a personal computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

With reference to FIG. 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a conventional personal computer 20, including a processing unit 21, a system memory 22, and a system bus 23 that couples various system components including the system memory to the processing unit 21. The system bus 23 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. The system memory 22 includes read only memory (ROM) 24 and random access memory (RAM) 25. A basic input/output system 26 (BIOS), containing the basic routines that helps to transfer information between elements within the personal computer 20, such as during start-up, may be stored in ROM 24.

The personal computer 20 further includes input/output devices 27, such as a hard disk drive 28 for reading from and writing to a hard disk, not shown, a magnetic disk drive 29 for reading from or writing to a removable magnetic disk 30, and an optical disk drive 31 for reading from or writing to a removable optical disk 32 such as a CD ROM or other optical media. The hard disk drive 28, magnetic disk drive 29, and optical disk drive 31 are connected to the system bus 23 by a hard disk drive interface 33, a magnetic disk drive interface 34, and an optical drive interface 35, respectively. The drives and their associated computer-readable media provide nonvolatile storage of computer readable instructions, data structures, program modules and other data for the personal computer 20. Although the exemplary environment described herein employs a hard disk, a removable magnetic disk 30 and a removable optical disk 32, it should be appreciated by those skilled in the art that other types of computer readable media which can store data that is accessible by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, random access memories (RAMs), read only memories (ROM), and the like, may also be used in the exemplary operating environment. Other I/O devices 27, such as a display 36, keyboard 37, mouse 38, and the like may be included in the personal computer 20 and function in a known manner. For the sake of brevity, other components, such as a joystick, sound board and speakers are not illustrated in FIG. 1.

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The personal computer 20 may also include a network interface 36 to permit operation in a networked environment using logical connections to one or more remote computers, such as a remote computer 40. The remote computer 40 may be another personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the personal computer 20, although only a memory storage device 42 has been illustrated in FIG. 1. The logical connections depicted in FIG. 1 include a local area network (LAN) 43 and a wide area network (WAN) 44. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

When used in a LAN networking environment, the personal computer 20 is connected to the LAN 43 through the network interface 39. When used in a WAN networking environment, the personal computer 20 typically includes a modem 45 or other means for establishing communications over the wide area network 44, such as the Internet. The modem 45, which may be internal or external, permits communication with remote computers 46–50. In a networked environment, program modules depicted relative to the personal computer 20, or portions thereof, may be stored in the remote memory storage device 42 via the LAN 51 or stored in a remote memory storage device 52 via the WAN 44. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

The present invention is embodied in a system 100 illustrated in the functional diagram of FIG. 2. In a typical telephone communication, an originating telephone 102 is operated by a calling party to place a call to a destination telephone 104. The originating telephone generates signals that are detected by a central office switch 106 operated by a local exchange carrier (LEC) 108. The LEC 108 is the telephone service provider for the calling party. The originating telephone 102 is coupled to the central office switch 106 via a communication link 110. As those skilled in the art can appreciate, the communication link 110 may be a hard-wired connection, such as a fiber optic, copper wire, or the like. Alternatively, the communication link 110 may be a wireless communication link if the originating phone 102 is a cellular telephone or some other form of wireless telephone.

Similarly, the destination telephone 104 is coupled to a central office switch 116 operated by a local exchange carrier (LEC) 118. The destination telephone 104 is coupled to the central office switch 116 via a communication link 120. The communication link 120 may be a hard-wired communication link or a wireless communication link, as described above with respect to the communication link 110. The present invention is not limited by the specific form of communication link or central office switch.

The LEC 108 establishes a communication link with the LEC 118. As illustrated in FIG. 2, the communication link between the LEC 108 and the LEC 118 is through a long distance carrier (LDC) 124. The LEC 108 establishes a communication link 126 with the LDC 124 which, in turn, establishes a communication link 128 with the LEC 118. If the telephone call from the originating telephone 102 to the destination telephone 104 is not a long distance call, the LDC 124 is not required. In this case, the communication link 126 may couple the LEC 108 directly to the LEC 118. The use of the system 100 with other telephone configurations are illustrated in other figures.

To place a telephone call, the calling party activates the originating telephone 102 to dial in the telephone number

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<table>
<tr><td>5</td><td>6</td></tr>
</table>

corresponding to the destination telephone number 104, thereby establishing the communication link 110 with the central office switch 106. In true, the central office switch 106 establishes the communication link 126 (via the LDC 124, if necessary), thus establishing a communication link with the central office switch 116. In a conventional telephone system, the central office switch 116 establishes the communication link 120 to the destination telephone 104 causing the destination telephone to ring. If the subscriber picks up the destination telephone, a complete communication link between the originating telephone 102 and the destination telephone 104 has been established. This is sometimes referred to as "terminating" the telephone call. The specific telecommunications protocol used to establish a telephone communication link between the originating telephone 102 and the destination telephone 104 is well known in the art and need not be described herein. The preceding description of techniques used to establish the telephone communication link are provided only as a basis for describing the additional activities performed by the system 100.

With the system 100, the central office switch 116 does not initially establish the telephone communication link 120 with the destination telephone 104 to cause the telephone to ring. Instead, the central office switch 116 establishes a communication link 132 with a computer network 134, such as the Internet. As those skilled in the art can appreciate, the Internet is a vast multi-computer network coupled together by data links having various communication speeds. Although the Internet 134 may use a variety of different communication protocols, a well-known communication protocol used by the Internet is a Transmission Control Protocol/Internet Protocol (TCP/IP). The transmission of data on the Internet 134 using the TCP/IP is known to those skilled in the art and need not be described in greater detail herein.

The central office switch 116 utilizes conventional telephone communication protocols, which may be different from the TCP/IP communication protocols used by the Internet 134. The system 100 includes a communication interface 136 to translate data between the two communication protocols. The communication interface 136 includes a telephone interface portion 138 and an Internet interface portion 140. The telephone interface portion 138 is coupled to the central office switch 116 via the communication link 132 such that communications occurring on the communication link 132 utilize the telephone communication protocol. The Internet interface portion 140 communicates via the Internet using conventional communication protocols, such as TCP/IP.

The communication interface 136 may be implemented on a computing platform that functions as a server. The conventional components of the computing platform, such as a CPU, memory, and the like are known to those skilled in the art and need not be described in greater detail herein. The telephone interface portion 138 may comprise an Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) to communicate with the central office switch 116. The ISDN PRI, which may be implemented on a plug-in computer card, provides information to the telephone interface portion 138, such as automatic number identification (ANI), dialed number identification service (DNIS), and the like. As is known, ANI provides the telephone number of the caller's telephone (e.g., the originating telephone 102) while the DNIS allows the number the caller dialed (e.g., the destination telephone 104) to be forwarded to a computer system. These data may be considered "keys" which may be used by the system 100 to identify the caller and the callee. Thus, the central office switch 116 provides information which may be used to access the affiliation list 150 for the destination telephone 104.

The Internet interface portion 140 may be conveniently implemented with a computer network card mounted in the same computing platform that includes the ISDN PRI card. However, it is not necessary for satisfactory operation of the system 100 that the interface cards be co-located in the same computing platform. It is only required that the telephone interface portion 138 communicate with the Internet interface portion 140. The Internet interface portion 140 receives the incoming data (e.g., the ANI, DNIS, and the like) and generates Internet compatible commands. The specific form of the Internet commands using, by way of example, TCP/IP, are within the scope of knowledge of one skilled in the art and need not be described herein. As will be described below, data provided by the central office switch 116 will be used to access data on the Internet and use that data to determine the manner in which a telephone call will be processed.

The Internet 134 stores an affiliation list 150, which may be established by the user of the destination telephone 104. Data stored within the affiliation list 150 is accessed by the central office switch 116 to determine the manner in which the call from the originating telephone 102 will be processed. Details of the affiliation list 150 are provided below. The Internet 134 also includes an Internet controller 152 which communicates with a user computer 154 via a network link 156. The communication between the user computer 154 and the Internet 134 is a conventional communication link used by millions of computers throughout the world. For example, the user computer 154 may be a personal computer (PC) containing a communication interface, such as a modem (not shown). The network link 156 may be a simple telephone communication link using the modem to communicate with the Internet 134. The Internet controller 152 functions in a conventional manner to communicate with the user computer 154 via the network link 156. Although the communication link 132 and the network link 156 are both communication links to the Internet, the network link 156 is a conventional computer connection established over a telephone line, a network connection, such as an Ethernet link, or the like. This conventional network link 156 is significantly different from the communication link 132 between the central office switch 116 and the Internet 134. The central office switch 116 establishes the communication link 132 to access data on the Internet and uses that accessed data to determine how to process an incoming call for the destination telephone 104. The network link 156 is a computer-to-computer connection that may simply use a telephone as the physical layer to establish the network link.

In the system 100, the central office switch 116 receives an incoming call from the originating telephone 102 via the central office switch 106 and, optionally, the LDC 124. Rather than immediately establishing the communication link 120 and generating a ring signal at the destination telephone 104, the central office switch 116 establishes the communication link 132 and communicates with the Internet 134 via the communication interface 136. The purpose of such communication is to access the affiliation list 150 and thereby determine the manner in which the user of the destination telephone 104 wishes calls to be processed.

FIG. 3 illustrates the system 100 for a telephone system configuration in which the originating telephone 102 and the

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destination telephone **104** are both serviced by the same local exchange carrier **108**. The originating telephone **102** establishes the communication link **110** with the central office switch **106** in the manner described above. The central office switch **106** establishes the communication link **126** directly with the central office switch **116** without the need for the LDC **124** (see FIG. 2). The central office switch **116** operates in the manner described above. That is, the central office switch **116** does not immediately establish the communication link **120**, but does establish the communication link **132** with the Internet **134**. For the sake of simplicity, FIG. 3 does not illustrate the communication interface **136**. However, those skilled in the art will appreciate that the central office switch **116** accesses the affiliation list **150** via the communication interface **136** (see FIG. 2).

For the sake of simplicity, FIG. 3 also does not show the Internet controller **152** and the user computer **154**. However, those skilled in the art can appreciate that those portions of the system may also be present in the embodiment illustrated in FIG. 3. However, it should be noted that the user computer **154** and the Internet controller **152** need only be used to edit the affiliation list **150**. The call processing by the central office switch **116** does not depend on the presence of the Internet controller **152** or the user computer **154**. That is, the central office switch **116** accesses the affiliation list **150** via the communication interface **136** regardless of the presence of the user computer **154**.

In yet another telephone system configuration, illustrated in FIG. 4, the originating telephone **102** and the destination telephone **104** are not only serviced by the same local exchange carrier **108**, but are connected to the same central office switch **116**. However, the fundamental operation of the system **100** remains identical to that described above with respect to accessing the affiliation list **150**. That is, the originating telephone **102** establishes the communication link **110** with the central office switch **116**. However, the central office switch **106** need not establish the communication link **126** with any other central office switch since the destination telephone **104** is also connected to that same central office switch.

In this telephone system configuration, the central office switch **116** accesses the affiliation list **150** on the Internet **134** via the communication link **132** (see FIG. 2) in the manner described above. For the sake of simplicity, FIG. 4 does not illustrate the communication interface **136**. However, those skilled in the art will recognize that the communication interface **136** operates to convert communication signals between telephone protocol used by the central office switch **106** and the Internet communication protocol used by the Internet **134**. In addition, FIG. 4 also does not illustrate the Internet controller **152** and the user computer **154**. As noted above with respect to FIG. 3, the Internet controller **152** and user computer **154** are not necessary for proper operation of the system **100**. The user computer **154** is typically used in the system **100** to edit the affiliation list **150**.

The affiliation list **150** is illustrated in greater detail in the functional block diagram of FIG. 5. The affiliation list comprises a series of sublists, illustrated in FIG. 3 as a forward list **160**, a reverse list **162**, a block list **164**, and an allow list **166**. The forward list **160** contains a list of Internet subscribers whose Internet activity a user wishes to monitor. This list is sometimes referred to as a "buddy" list. When the user operates the user computer **154** on the Internet **134**, the Internet controller **152** accesses the forward list **160** via an affiliation list input/output (I/O) interface **170** to determine which Internet subscribers contained within the forward list

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are currently active on the Internet **134**. In conventional Internet operation, the Internet controller **152** sends a message to the user computer **154** indicating which Internet subscribers on the forward list **160** are currently active on the Internet **134**.

The forward list **160** is a list of Internet subscribers whose activity is reported to the user. Other Internet subscribers may have their own forward list (not shown) and may monitor the Internet activity of the user. When the user accesses the Internet **134** with the user computer **154**, that activity can be monitored by others. With the system **100**, it is possible to determine who is monitoring the user's Internet activity. The reverse list **162** contains a list of Internet subscribers who have placed the user in their forward list. That is, the reverse list **162** contains a list of Internet subscribers who have placed the user in their buddy list. With the reverse list **162**, the user can determine who is monitoring his Internet activity.

The block list **164** contains a list of Internet subscribers that the user does not want to monitor his Internet activity. That is, the user's Internet activity will not be provided to any Internet subscriber contained in the block list **164**. Thus, even if a particular Internet subscriber has placed the user on their forward list, the presence of that particular Internet subscriber's name on the block list **164** will prevent the user's Internet activity from being reported to the particular Internet subscriber. The use of the block list **164** provides certain security assurances to the user that their Internet activity is not being monitored by any undesirable Internet subscribers.

The allow list **166** contains a list of Internet subscribers for whom the user may wish to communicate with but whose Internet activity the user does not wish to monitor.

The system **100** combines the capabilities of the affiliation list **150** with telephone switching technology to filter incoming calls to the destination telephone **104**. For example, the user may specify that only calls from Internet subscribers contained in the forward list **154** may contact the user via the destination telephone **104**. Alternatively, the user may specify that a calling party whose name is contained in the forward list **160** or the allow list **166** may place a call to the destination telephone **104**. As will be discussed in greater detail below, the system **100** allows the user to create general conditional processing, such as blocking calls or allowing calls. However, the user can also create specific conditional processing for individual callers or based on the user's current status or preferences.

The central office switch **116** accesses the affiliation list **150** via the communication link **132** and determines whether the calling party is in a list (e.g., the forward list **160**) that the user wishes to communicate with. If the calling party is contained within an "approved" list, the central office switch **116** establishes the communication link **120** and sends a ring signal to the destination telephone **104**. Thus, the user can pick up the telephone with the knowledge that the calling party is an individual with whom the user wishes to communicate.

Conversely, if the calling party is not contained within an approved list, such as the forward list **160** or the allow list **166**, the central office switch **116** will not establish the communication link **120** with the destination telephone **104**. Thus, the user will not be bothered by undesirable phone calls. In one embodiment, the central switch office simply will not establish the communication link **120** and the calling party will recognize that the call did not go through. Alternatively, the central office switch **116** may generate a

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signal indicating that the destination telephone 104 is busy. In this alternative embodiment, the calling party will receive a busy signal on the originating telephone 102. Thus, the user has the ability to filter incoming calls by creating a list of those individuals with whom the user wishes to communicate.

It should be noted that the affiliation list 150 may be dynamically altered by the user to add or delete individuals, change individuals from one list to another, or to change the call processing options for a particular list depending on the user's preferences. For example, the user may want to accept all calls from any source at certain times of the day. Under these circumstances, the user can edit the allow list 166 to accept calls from any calling party. Alternatively, the user may still maintain the block list 164 such that calls will not be processed from certain specified parties even if the user is willing to accept calls from any other source. Under other circumstances, the user may not wish to communicate with any individuals. In this instance, the user may indicate that all calling parties are on the block list 164. Thus, the central office switch 116 will access the Internet 134 in real-time and review data in the affiliation list 150 to thereby process incoming calls for the user in accordance with the rules present in the affiliation list.

The discussion above provides examples of the central office switch 116 processing calls from a calling party in accordance with their presence or absence of certain lists in the affiliation list 150. For example, a call from a party on the forward list 160 will be connected to the destination telephone 104 (see FIG. 2) while a call from a party on the block list 164 will not be put through to the destination telephone. However, the system 100 also allows the selection of call processing options on an individual basis rather than simply on the presence or absence in a particular list. For example, the user can edit the allow list 166 to specify that certain individuals are "allowed" while other individuals may be allowed, conditionally allowed, or blocked all together. If the individual calling party has an associated status indicating that they are allowed, the central office switch 116 will process the incoming call and connect it to the destination telephone 104. If the individual calling party has an associated blocked status, the central office switch 116 will not process the call and will not connect it to the destination telephone 104.

Furthermore, the user may attach conditional status to individual callers or to calling lists. Conditional status may be based on factors, such as the time of day, current availability of the user, work status, or the like. For example, the user may accept calls from certain work parties during specified periods of the day (e.g., 9:00 a.m.–11:00 a.m.), block calls from selected calling parties during other periods of time (e.g., 12:00–1:00 p.m.), or allow calls during a business meeting only from certain calling parties (e.g., the boss). These conditional status criteria may be applied to individuals or to one or more lists in the affiliation list 150.

FIG. 6 illustrates sample data entries in the allow list 166. The allow list 166 may include data, such as a name, Internet subscriber name, and one or more phone numbers associated with the individual data entry. It should be noted that the calling party need not have an Internet subscriber name for proper operation of the system 100. That is, the central office switch 116 accesses the allow list 166 utilizing the calling party number and need not rely on any email addresses or other Internet subscriber identification for proper operation. The allow list 166 may also include an email alias in addition to or in place of the Internet subscriber name. Some Internet subscribers prefer to "chat" with other subscribers

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utilizing an alias rather than their actual Internet subscriber name. The data of FIG. 6 illustrates one possible embodiment for the allow list 166. However, those skilled in the art can appreciate that the allow list 166 may typically be a part of a large database (not shown). Database operation is well known in the art, and need not be described in greater detail herein. The database or other form of the forward list 160 may be satisfactorily implemented using any known data structure for storage of data. For example, the various lists (e.g., the allow list 166, the reverse list 162, the block list 164 and the allow list 166) may all be integrated within a single database structure. The present invention is not limited by the specific structure of the affiliation list 150 nor by the form or format of data contained therein.

Rather than incoming call filtering on the basis of presence in a particular list, such as the allow list 166, as illustrated in FIG. 6, the affiliation list 150 may contain status data on an individual basis. In this event, the central office switch 116 (see FIG. 2) processes the incoming call in accordance with the designated status for that individual. In the example illustrated in FIG. 7, the affiliation list 150 contains one individual with an "allowed" status, one individual with a "blocked" status, and one individual with a "conditional" status based on user-selected criteria. In the example of FIG. 7, the user-selected criteria may be based on the particular phone from which the call is originating as well as the time of day in which the call is originated. For example, the user may wish to allow all calls from a particular number, such as an caller's work number. However, calls from another number, such as the caller's home phone, may be blocked. Other calls, such as from a caller's cellular telephone, may be allowed only at certain times of day. FIG. 7 is intended to illustrate some of the call processing options that are available to the user. As can be appreciated, a variety of different conditional status criteria may be applied to one or more potential calling parties. However, a common feature of the system 100 is that the telecommunication system (e.g., the central office switch 116) determines calling party status on the basis of information stored on the Internet and processes the incoming call in accordance with the user-specified criteria. Moreover, the system 100 operates in real-time to process the incoming call in accordance with the user-specified criteria.

The Internet 134 may be conveniently used as a storage area for the caller specified criteria. The advantage of such data storage on the Internet is that the data is widely accessible to the user. This provides a convenient mechanism for entering new caller data or editing existing caller data. The user can access the affiliation list 150 with the user computer 154 via the network link 156. In contrast, the central office switch 116 may access the affiliation list 150 via the communication link 132, which may typically be a high-speed communication link. In addition, FIGS. 2, 4, and 5 illustrate the central office switch 116 as the telecommunication component that accesses the Internet 134. It is convenient for operational efficiency to have the central office switch (e.g., the central office switch 116) to which the destination telephone 104 is connected perform such Internet access. It is at this stage of the telephone call processing that the telecommunication system may most conveniently determine the user-specified caller status. However, those skilled in the art will recognize that the status check may be performed by other portions of the telecommunication system, such as the central office switch 106, the LDC 124, or the like. Thus, the present invention is not limited by the particular telecommunication component that establishes the communication link with a network which the user-specified caller status data is stored.

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In addition, the system **100** can be readily implemented as an "add-on" component of the telecommunication system and need not be integrated with the central office switch **116**. For example, the conventional central office switch provides the ability to divert calls based on certain call conditions, such as "Call Forward No Answer," which may be used to divert an incoming call to voicemail or "Call Forward Busy," which may also divert the incoming call to voicemail. To implement the system **100** with an add-on processor, the system may optionally include a Switch to Computer Applications Interface (SCAI) **174** and a call filtering processor **176**. The dashed lines of FIG. 4 are intended to illustrate an alternative configuration of the system **100**. This alternative configuration can also be implemented with other telephone system configurations, such as illustrated in FIGS. 2 and 3. The SCAI **174** is a telecommunication protocol that allows switches to communicate with external computers. Data, such as caller and callee telephone numbers, and status information, such as Call Forward Busy, are provided to the SCAI **174** by the central office switch **116**.

The call filtering processor **176** performs the functions described above to process the call in accordance with the user-specified criteria. That is, the call filtering processor **176** receives caller and callee data from the SCAI **174** and accesses the affiliation list **150** via the communication interface **136** (see FIG. 2). The call filtering processor **176** uses user-specified call processing criteria to generate instructions for the central office switch **116**. The instructions are provided to the central office switch **116** via the SCAI **174**. Those skilled in the art will appreciate that the SCAI **174** is but one example of the Open Application Interface (OAI) that can be used with the central office switch **116**.

As noted above, the system **100** can process a call intended for the destination telephone **104**, block a call, or generate a busy signal at the originating telephone **102**. However, the system **100** also operates with voicemail and permits a number of different customized outgoing messages. FIG. 4 illustrates a voicemail system **180** having a storage area containing one or more outgoing messages **182**. For example, the voicemail system **180** can play an outgoing message **182** informing the caller that "the party you are calling only accepts calls from designated callers. Please leave a message." If calls are blocked only at certain times, the outgoing message **182** can say "the party you are calling does not accept calls between 11:30 a.m. and 1:00 p.m. Please leave a message or call back after 1:00 p.m." The outgoing message can also reflect callee availability by playing a message such as "The party you are calling is in a meeting. Please leave a message or call back in X minutes" where X reflects the amount of time before the meeting is expected to end. That information can be manually provided to the affiliation list **150** by the user or automatically derived from a computerized scheduling program on, by way of example, the user computer **154** (see FIG. 2).

Computerized scheduling programs, such as Microsoft® Schedule Plus, can be used on the user computer **154** (see FIG. 2). It is known that such scheduling programs can be accessed via a computer network or downloaded to a hand-held computing device to track appointments. The system **100** can access such computerized scheduling programs and download appointments and scheduled meetings into the affiliation list **150**. The outgoing messages **182** can be automatically selected on the basis of the user's computerized schedule. Thus, the system **100** permits the user to schedule his day (e.g., meetings, lunch time, in office/

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available for calls, in office/unavailable for calls, etc.) on a computerized scheduling program and to process calls in accordance with the computerized schedule and even select outgoing messages automatically based on the user's schedule.

The operation of the system **100** is illustrated in the flowchart of FIG. 7. At a start **200**, the calling party has placed a call from the originating telephone **102** (see FIG. 2) to the destination telephone **104**. In step **202**, the central office switch **116** has received call data from the originating telephone **102**. The received call data includes the destination telephone number of the destination telephone **104** and identification data indicating the originating telephone **102** as the source of the present call. Use of automatic number identification (ANI) is a well-known technique for providing identification data indicating the originating telephone **102** as the source of the present call. While the specific implementation of ANI data, sometimes referred to as caller ID, may not be uniformly implemented throughout the United States, the ANI data is typically delivered between the first and second rings. In the present invention, the central office switch **116** (see FIG. 2) does not initiate a ring signal to the destination telephone **104** until after determining the status of the calling party based on the ANI. In future implementations, telecommunication companies may transmit other forms of caller identification, such as caller name, Internet address, email alias, or the like. The system **100** operates satisfactorily with any form of caller identification. The only requirement for the system **100** is that some form of caller identification be provided. The call is processed in accordance with the user-specified criteria in the affiliation list **150** for the identified caller.

In step **204**, the central office switch **116** (see FIG. 2) establishes the communication link **132** with the Internet **134**. Although step **204** illustrates the system **100** as actively establishing the communication link **132** with the Internet **134**, those skilled in the art will recognize that the system **100** can utilize a continuous high-speed data link between the central office switch and the Internet. Thus, it is not necessary to establish a network link for each and every incoming call processed by the central office switch **116**. As previously described, the communication interface **136** translates data between the telephone protocol and the Internet protocol. In step **206**, the system **100** accesses the affiliation list **150** for the user (i.e., the called party). In an exemplary embodiment, the telephone number of the destination telephone **104** or other callee identification is used as an index or pointer to a specific location within the database where the affiliation list **150** for the particular user may be found. Database operation in general, and techniques for locating specific items within a database in particular are known to those skilled in the art and need not be described herein.

In decision **210**, the system **100** determines whether the caller identification data is on the forward list **160** (see FIG. 3). If the caller identification data is present in the forward list, the result of the decision **210** is YES. In that event, the system **100** proceeds to FIG. 7B where the call is processed in accordance with the rules associated with the forward list **160**.

If the caller identification data is not present in the forward list **160** (see FIG. 3), the result of decision **210** is NO. In that event, the system **100** moves to decision **212** to determine whether the caller identification data is in the allow list **166**. If the caller identification data is present in the allow list **166**, the result of decision **214** is YES. In that event, the system **100** proceeds to decision **216** where the

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call is processed in accordance with the rules associated with the allow list 166. If the caller identification data is not present in the allow list 166, the result of decision 216 is NO.

In decision 218, the system 100 determines whether the caller identification data is present in the reverse list 162. If the caller identification data is present in the reverse list 162, the system 100 proceeds to the step 220 where the call is processed in accordance with the rules associated with the reverse list 162. If the caller identification data is not present in the reverse list, the result of decision 218 is NO. In that event, the system moves to decision 216 to determine whether the caller is present on the block list 164. If the caller is present on the block list 164, the result of decision 222 is YES. In that event, the system proceeds to step 224 where the call is processed in accordance with the rules associated with the block list. If the caller identification data is not present in the block list 164, the result of decision 222 is NO. This indicates that the caller identification data is not present in any of the user-specified lists in the affiliation list 150. In that event, the system moves to step 226 where the call may be processed in accordance with user-specified rules of processing anonymous or unidentified calls. The flowchart of FIG. 8 illustrates the operation of the system 100 with multiple lists wherein the call processing rules are designated for each list. In this embodiment, the call is processed on the basis of the presence or absence of the caller identification data in a particular list. However, as previously discussed, the affiliation list 150 (see FIG. 6B) may include user-specified status criteria for individual callers. In this embodiment, the system 100 processes the call on the basis of the user-specified status criteria associated with the individual caller rather than on the basis of the caller's presence or absence in a specific list. In that event, the system 100 may simply access the user affiliation list (see step 206 in FIG. 7) and process the call in accordance with the user-specified status criteria for the individual caller. If the caller identification data is not present in the affiliation list 160, the call may be processed using user-specified call processing criteria for unidentified callers, as shown in step 226.

Thus, the system 100 allows the user to specify call processing rules for a plurality of different caller lists or for individual callers within a list. The caller lists may be readily edited in accordance with the changing desires of the user. The user may alter the call processing rules in accordance with various times of day, work conditions, or even the personal mood of the user. For example, the user may process all calls during certain times of the day, such as when the user is at work. However, when the user arrives home, subsequent calls may be processed in accordance with a different set of rules, such as accepting no calls during dinner time or after a certain time at night.

These rules may be applied differentially to different ones of the list in the affiliation list 150. For example, the user may accept calls from any calling party on the forward list 160 (see FIG. 3) or the allow list 166 during the evening hours. However, after a certain time at night, the caller may accept calls only from calling parties on the forward list 160. Thus, the system 100 allows great flexibility in the user selection of calling rules and lists. The system 100 allows the user to filter incoming calls in accordance with generalized rules or in accordance with highly specific rules.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. For example, the system discussed herein

uses, by way of example, the Internet 134 to store the affiliation list 150. However, the system 100 can be implemented with other computer networks or as a portion of a telephone switch, such as the central office switch 116. The telephone service provider can provide a customer with an affiliation list and some means to control the list as a value-added telephone service. The central office switch 116 accesses the internal affiliation list and processes the incoming calls in accordance with the user-specified criteria contained therein. Accordingly, the invention is not limited except as by the appended claims.

What is claimed is:

1. In an environment where subscribers call a user over a telephone network, wherein a user telephone is coupled with the telephone network, a system for processing an incoming call from a subscriber to a user in the telephone network according to user specifications, the system comprising:

a data structure contained within a computer network to store user-selectable criteria for call processing, wherein the data structure stores the user-selectable criteria in one or more lists that are used in filtering an incoming call and wherein some of the one or more lists are used to filter the incoming call according to current activity of subscribers on the computer network or according to current activity of the user on the computer network;

a computer network access port used by the telephone network to access the data structure such that the telephone network has access to the one or more lists over the computer network access port; and

a controller to receive the incoming call designated for the user telephone and to process the incoming call in accordance with the user-selectable criteria, the controller accessing the user-selectable criteria in the one or more lists of the data structure via the computer network access port and thereby applying the user-selectable criteria to the incoming call.

2. The system of claim 1 wherein the data structure stores the user-selectable criteria in association with caller identification data and the incoming call includes origination identification data associated therewith, the controller using the origination identification data to identify user-selectable criteria stored in the data structure in association with the caller identification data.

3. The system of claim 2 wherein the identification data is telephone automatic number identification data.

4. The system of claim 2 wherein the identification data is electronic mail identification data.

5. The system of claim 1 wherein the user-selectable criteria indicates permission to process the incoming call, the controller processing the incoming call in accordance with the permission to generate a ring signal at the user telephone.

6. The system of claim 1 wherein the user-selectable criteria indicates no permission to process the incoming call, the controller blocking the incoming call and not generating a ring signal at the user telephone.

7. The system of claim 6 wherein the controller blocking the incoming call generates a busy signal at an origination telephone from which the incoming call is originated.

8. The system of claim 6, further comprising an outgoing message system having an outgoing message, the controller blocking the incoming call and playing the outgoing message at an origination telephone.

9. The system of claim 1 wherein the user-selectable criteria indicates permission to process the incoming call during a user-selected time period, the controller processing

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the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone, the controller blocking the incoming call and not generating a ring signal at the user telephone during a time period other than the user-selected time period.

10. The system of claim 9, further comprising an outgoing message system storing a plurality of outgoing messages, the controller selecting one of the plurality of outgoing messages wherein the outgoing message system plays the selected outgoing message at an origination telephone from which the incoming call is originated.

11. The system of claim 10 wherein the incoming call arrives at a particular time other than the user-selected time period, the controller selecting the selected outgoing message based on the particular time of arrival of the incoming call.

12. The system of claim 1, further comprising a data editor to permit user entry and editing of the user-selectable criteria into the data structure.

13. The system of claim 12 wherein the data editor is a computer coupled to the computer network.

14. The system of claim 1 wherein the computer network is the Internet.

15. The system of claim 1 wherein each of the one or more lists of the data structure comprises a plurality of data substructures each storing caller identification data and having the user-selectable criteria associated with each of the plurality of data substructures, wherein the incoming call includes origination identification data associated therewith, the controller using the origination identification data to determine a particular one of the plurality of data substructures storing caller identification data corresponding to the origination identification data and processing the incoming call in accordance with the user-selectable criteria associated with the particular one of the plurality of data substructures.

16. The system of claim 15, further comprising a data editor to permit user entry of the caller identification data into the data structure prior to receipt of the incoming call.

17. The system of claim 15 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will accept incoming calls, the controller processing the incoming call and signaling the user telephone of an incoming call directed to the user telephone if the origination identification data corresponds to caller identification data in the first of the plurality of data substructures.

18. The system of claim 15 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will not accept incoming calls, the controller blocking processing of the incoming call if the origination identification data corresponds to caller identification data in the first of the plurality of data substructures.

19. The system of claim 18 wherein the controller blocking processing of the incoming call generates a busy signal at an origination telephone from which the incoming call is originated.

20. The system of claim 15 wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will accept incoming calls subject to user-selected time restrictions, the controller processing the incoming call in accordance with the time restrictions and signaling the user telephone of an incoming call directed to the user telephone if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

21. In an environment where subscribers call a user over a telephone network, wherein a user telephone is coupled

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with the telephone network, a system for user specification of call processing in the telephone network, the system comprising:

a data structure contained within a computer network and accessible by the telephone network, the data structure containing a plurality of caller lists each having associated user-selectable criteria for call processing, wherein some of the plurality of caller lists are conditioned according to current activity of subscribers on the computer network or according to current activity of the user on the computer network;

a computer network access port used by the telephone network to access the data structure such that the telephone network has access to the plurality of caller lists; and

a controller on the telephone network to receive an incoming call having origination data indicative of a subscriber and destination data indicating the call is designated for the user telephone, the controller accessing the plurality of caller lists in the data structure via the computer network access port to determine which of the plurality of caller lists contains the origination data, the controller processing the incoming call in accordance with the user-selectable criteria associated with the caller list containing the origination data.

22. The system of claim 21 wherein the user-selectable criteria associated with the caller list containing the origination data indicates permission to process the incoming call, the controller processing the incoming call in accordance with the permission to generate a ring signal at the user telephone.

23. The system of claim 21 wherein the user-selectable criteria associated with the caller list containing the origination data indicates no permission to process the incoming call, the controller blocking the incoming call and not generating a ring signal at the user telephone.

24. The system of claim 21 wherein the user-selectable criteria associated with the caller list containing the origination data indicates permission to process the incoming call during a user-selected time period, the controller processing the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone, the controller blocking the incoming call and not generating a ring signal at the user telephone during time periods other than the user-selected time period.

25. The system of claim 21, further comprising a data editor to permit user entry and editing of the user-selectable criteria into the data structure.

26. The system of claim 21 wherein the computer network is the Internet.

27. The system of claim 21 wherein the telephone network is a public switched telephone network.

28. In a system where subscribers call a user over a telephone network, wherein a user telephone is coupled with the telephone network, a computer program product for implementing a method for processing a call from a subscriber to a user over a telephone network, the computer program product comprising:

a computer readable medium having computer executable instructions for performing the method, the method comprising:

accepting an incoming call designated for the user telephone;

accessing a data structure contained within a computer network that is independent of the telephone network to retrieve user-selectable criteria for call processing stored within the data structure, wherein some of the

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user-selectable criteria is conditioned on current activity of subscribers on the computer network or according to current activity of the user on the computer network; and

    processing the incoming call in accordance with the user-selectable criteria.

29. The computer program product of claim **28**, further comprising:

    generating call processing rules based on the user-selectable criteria; and

    storing the call processing rules on the computer network in association with a caller list.

30. The computer program product of claim **29** wherein generating call processing rules is performed on a computer coupled to the computer network.

31. The computer program product of claim **28** wherein the data structures store the user-selectable criteria in association with caller identification data and the incoming call includes origination identification data associated therewith, the method further comprising accessing the data structure using the origination identification data to identify user-selectable criteria stored in the data structure in association with the caller identification data.

32. The computer program product of claim **28** wherein the user-selectable criteria indicates permission to process the incoming call, the method comprising:

    processing the incoming call comprising establishing a link with the user telephone; and

    generating a ring signal at the user telephone.

33. The computer program product of claim **28** wherein the user-selectable criteria indicates no permission to process the incoming call, the method further comprising

    processing the incoming call comprising blocking the incoming call; and

    not generating a ring signal at the user telephone.

34. The computer program product of claim **33**, further comprising generating a busy signal at an origination telephone from which the incoming call is originated.

35. The computer program product of claim **34**, further comprising playing an outgoing message at an origination telephone from which the incoming call is originated, the outgoing message indicating that the incoming call will not be connected to the user telephone.

36. The computer program product of claim **28** wherein the user-selectable criteria indicates permission to process the incoming call during a user-selected time period, the method further comprising:

    processing the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone; and

    blocking the incoming call and not generating a ring signal at the user telephone during time periods other than the user-selected time period.

37. The computer program product of claim **28** wherein the data structure comprises a plurality of data substructures each storing caller identification data and having the user-selectable criteria associated with each of the plurality of data substructures, wherein the incoming call includes origination identification data associated therewith, the method further comprising:

    accessing the data structure using the origination identification data to determine a particular one of the plurality of data substructures storing caller identification data corresponding to the origination identification data; and

    processing the incoming call in accordance with the user-selectable criteria associated with the particular one of the plurality of data substructures.

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38. In a system including a telephone network and a computer network where an originating telephone connects with a user telephone over the telephone network, a method for processing a call from the originating telephone to the user telephone according to user specifications, the method comprising:

    accepting an incoming call designated for the user telephone from an originating telephone of a subscriber;

    accessing a data structure contained within a computer network that is independent of the telephone network to retrieve user-selectable criteria for call processing stored within the data structure, wherein some of the user-selectable criteria is conditioned on current activity of subscribers on the computer network or according to current activity of the user on the computer network; and

    processing the incoming call of the subscriber in accordance with the user-selectable criteria.

39. The method of claim **38**, further comprising generating call processing rules based on the user-selectable criteria and storing the call processing rules on the computer network in association with a caller list that is associated with the data structure.

40. The method of claim **39** wherein generating call processing rules is performed on a computer coupled to the computer network.

41. The method of claim **38** wherein the computer network is the Internet.

42. The method of claim **38** wherein the telephone network is a public switched telephone network.

43. The method of claim **38** wherein the data structure stores the user-selectable criteria in association with caller identification data and the incoming call includes origination identification data associated therewith, wherein accessing a data structure further comprises using the origination identification data to identify user-selectable criteria stored in the data structure in association with the caller identification data.

44. The method of claim **38** wherein the user-selectable criteria indicates permission to process the incoming call, wherein processing the incoming call further comprises establishing a link with the user telephone and generating a ring signal at the user telephone.

45. The method of claim **38** wherein the user-selectable criteria indicates no permission to process the incoming call, wherein processing the incoming call further comprises blocking the incoming call and not generating a ring signal at the user telephone.

46. The method of claim **45**, further comprising generating a busy signal at an origination telephone from which the incoming call is originated.

47. The method of claim **45**, further comprising playing an outgoing message at an origination telephone from which the incoming call is originated, the outgoing message indicating that the incoming call will not be connected to the user telephone.

48. The method of claim **38** wherein the user-selectable criteria indicates permission to process the incoming call during a user-selected time period, wherein processing the incoming call further comprises:

    processing the incoming call during the user-selected time period in accordance with the permission to generate a ring signal at the user telephone;

    blocking the incoming call; and

    not generating a ring signal at the user telephone during time periods other than the user-selected time period.

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49. The method of claim **38** wherein the data structure comprises a plurality of data substructures each storing caller identification and having the user-selectable criteria associated with each of the plurality of data substructures, wherein the incoming call includes origination identification 5 data associated therewith, wherein accessing the data structure further comprises using the origination identification data to determine a particular one of the plurality of data substructures storing caller identification data corresponding to the origination identification data and processing the 10 incoming call in accordance with the user-selectable criteria associated with the particular one of the plurality of data substructures.

50. The method of claim **49** wherein a first of the plurality of data substructures is a list of caller identification data to 15 identify individuals from whom the user will accept incom-

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ing calls, wherein processing the incoming call further comprises signaling the user telephone of an incoming call directed to the user telephone if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

51. The method of claim **49** wherein a first of the plurality of data substructures is a list of caller identification data to identify individuals from whom the user will not accept incoming calls, wherein processing the incoming call further comprises not establishing a communication link with the user telephone if the origination identification data corresponds to caller identification in the first of the plurality of data substructures.

*   *   *   *   *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.   : 6,421,439 B1   Page 1 of 1
DATED   : July 16, 2002
INVENTOR(S)   : Stephen Mitchell Liffick

It is certified that error appears in the above-identified patent and that said Letters Patent is
hereby corrected as shown below:

Column 1,
Line 37, after "need for" please insert -- a --

Column 3,
Line 61, before "and the like" please delete "(ROM)," and insert -- (ROMs), --

Column 5,
Line 3, after "In" please delete "true" and insert -- turn --

Column 10,
Line 28, after "such as" please delete "an" and insert -- a --

Column 17,
Line 31, after "method further comprising" please insert -- : --

Signed and Sealed this

Sixth Day of April, 2004

JON W. DUDAS
Acting Director of the United States Patent and Trademark Office

EXHIBIT 5

TO

RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS

UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

MICROSOFT CORP.,
     Plaintiff,

v.

ALCATEL-LUCENT ENTERPRISE
and
GENESYS TELECOMMUNICATIONS
LABORATORIES, INC.,
     Defendants.

Civil Action No. 07-090-SLR
Hon. Sue L. Robinson

Jury Trial Demanded

JOINT CLAIM CHART

Per the Court's scheduling order, the parties submit the following joint claim chart outlining the terms for which there is a claim construction dispute. At issue are three terms in the '439 patent, four in the '289 patent, and seven in the '357 and '064 patents. For convenience, those terms, as well as the parties' proposed constructions, appear below.

'439 patent			
Term	**Appears In**	**MS Proposed Constr.**	**Defs.' Proposed Constr.**
"telephone network"	All asserted claims	"network for carrying telephony information"	"network for carrying telephony information originated by telephones"
"computer network"	All asserted claims	"network for carrying digital data"	"network for carrying digital data originated by computers"
"current activity of subscribers on the computer network or according to current activity of the user on the computer network"	All asserted claims	"current status of subscribers on the computer network or according to current status of the user on the computer network"	"whether the calling party is present on the computer network or the called party is present on the computer network"
"the controller accessing the user-selectable criteria in the one or more lists of the data structure via the computer network access port and thereby applying the user-selectable criteria to the incoming call"	Claims 1, 2 and 9	*The parties agree to the following construction:* "hardware or software that accesses the user-selectable criteria in the one or more lists of the data structure via the computer network access port and thereby applying the user-selectable criteria to the incoming call"	

'289 patent			
Term	**Appears In**	**MS Proposed Constr.**	**Defs.' Proposed Constr.**
"telephone network"	All asserted claims	"network for carrying telephony information"	"network for carrying telephony information originated by telephones"
"computer network"	All asserted claims	"network for carrying digital data"	"network for carrying digital data originated by computers"
"monitoring activity of a user computer"	All asserted claims	*Phrase does not require construction.* *If construction is required:* "monitoring the status of a user computer"	"determining whether a called party's computer is active or idle"
"at the computer network, receiving information from the telephone network that a first party from whom a call is originating desires to establish telephone communication with a second party"	All asserted claims	*Phrase does not require construction.* *If construction is required:* "receiving at the computer network information from the telephone network that a telephone call from a first party to a second party has been initiated"	"receiving at the computer network an indication from the telephone network that a first party requests to set up a telephone call with a second party prior to the time the call is placed by the first party"

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'064 and '357 patents			
Term	**Appears In**	**MS Proposed Constr.**	**Defs.' Proposed Constr.**
"unified messaging system"	All asserted claims	"system that allows messages of a data-centric network and a telephony-centric network to be received, stored, retrieved, and forwarded without regard to the communication devices or networks employed for the transmission of the messages (*i.e.*, in a coordinated manner)	"system that allows messages of a data-centric network and a telephony-centric network to be received, stored, retrieved, and forwarded to the communication devices or networks employed for the transmission of the messages"
"communication options"	All asserted claims	"settings that control how communication services will be handled"	"parameters associated with specific types of communication services"
"[first/second] enable option for enabling or disabling the [first/second] communication service"	Claims 1, 3, 8, 9 and 11 of the '064 patent; claims 1, 6 and 17 of the '357 patent	"communication option that controls the extent to which a communication service is implemented"	"an option that allows a subscriber to turn on or off a communication service"
"a single graphical menu for displaying said communication options for each of said communication services at the same time"	All asserted claims	"a single graphical menu for displaying at least a first communication service and option and a second communication service and option at the same time"	"one graphical menu that shows all of the communication options associated with the subscriber's communication services"
"audibly representing said communication options to one of said telephones using said telephony server, when said subscriber employs said one of said telephones	Claim 1 of the '357 patent;	"audibly representing communication options pertaining to at least two communication services to a telephone using said telephony server, when a subscriber employs one of the telephones to access the computer-implemented control center"	"audibly representing the same options available through the graphical menu to one of said telephones, using said telephony server, when said subscriber employs said one of said telephones to access said computer-implemented control center"

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'064 and '357 patents			
Term	**Appears In**	**MS Proposed Constr.**	**Defs.' Proposed Constr.**
to access said computer-implemented control center"			
"an audible representation of said communication options capable of being provided to one of said telephones, using said telephony server, when said subscriber employs said one of said telephones to access said computer-implemented control center"	Claim 17 of the '357 patent	"an audible representation of communication options pertaining to at least two communication services capable of being provided to one of the telephones, using said telephony server, when a subscriber employs one of the telephones to access the computer-implemented control center"	"an audible representation of the same options available through the graphical menu to one of said telephones, using said telephony server, when said subscriber employs said one of said telephones to access said computer-implemented control center"
"telephony server being configured to audibly represent said communication options to said telephone when said subscriber employs said telephone to access said computer-implemented control center"	All asserted claims of the '064 patent	"telephony server being configured to audibly represent communication options pertaining to at least two communication services to a telephone when the subscriber employs said telephone to access the computer-implemented control center"	"a telephony server that represents the same communication options that are available through the single graphical menu"

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Dated: May 2, 2008

Respectfully submitted,

MICROSOFT CORPORATION

ALCATEL-LUCENT ENTERPRISE and
GENESYS TELECOMMUNICATIONS
LABORATORIES, INC.

By its attorneys,

By their attorneys,

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EXHIBIT 6

FULLY REDACTED

EXHIBIT 7
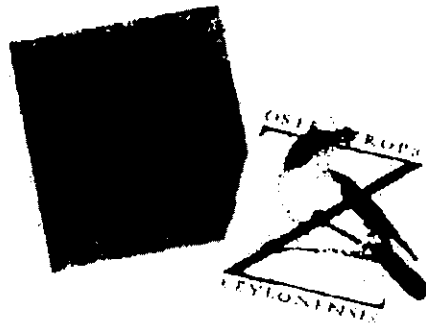
FULLY REDACTED

EXHIBIT 8

TO

<u>RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS</u>

The

American
Heritage®Dictionary

of the English Language

FOURTH EDITION

HOUGHTON MIFFLIN COMPANY
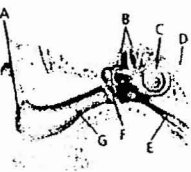Boston   New York

Visit our Web site: www.hmco.com/trade.

Ee

Italian initial letter depicting grape harvesting and winemaking, from a 1476 edition of Pliny the Elder's *Historia Naturalis*.

e¹ or **E** (ē) *n.*, *pl.* **e's** or **E's** also **es** or **Es 1.** The fifth letter of the modern English alphabet. **2.** Any of the speech sounds represented by the letter *e.* **3.** The fifth in a series. **4.** Something shaped like the letter E. **5. E** A grade that indicates failing status. **6.** *Music* **a.** The third tone in the scale of C major or the fifth tone in the relative minor scale. **b.** A key or scale in which E is the tonic. **c.** A written or printed note representing this tone. **d.** A string, key, or pipe tuned to the pitch of this tone. **7. e** *Mathematics* The base of the natural system of logarithms, having a numerical value of approximately 2.71828. **8. E** The hypothesized traditional source of those narrative portions of the Pentateuch in which God is referred to as Elohim rather than with the Tetragrammaton. [Sense 8, from ELOHIM.]

e² *abbr.* electron

E *abbr.* **1a.** east **b.** eastern **2.** *Baseball* error **3.** excellent

E. *abbr.* **1.** earl **2.** English

e– also **E–** *pref.* Computer or computer network: *e-cash; e-zine.* See Usage Note at **virtual.** [From E-MAIL.]

E•a (ā/ä) *n. Mythology* The Babylonian god of primordial waters. [Akkadian. See **hyw** in Appendix II.]

each (ēch) *adj.* Being one of two or more considered individually; every: *Each person cast a vote. My technique improved with each lesson.* ✦ *pron.* Every one of a group considered individually; each one. ✦ *adv.* For or to each one; apiece: *ten cents each.* [Middle English *ech*, from Old English *ǣlc.* See **lik-** in Appendix I.]

Usage Note The traditional rule holds that the subject of a sentence beginning with *each* is grammatically singular, and the verb and following pronouns must be singular accordingly: *Each of the apartments has* (not *have*) *its* (not *their*) *own private entrance* (not *entrances*). When *each* follows a plural subject, however, the verb and subsequent pronouns remain in the plural: *The apartments each have their own private entrances* (not *has its own private entrance*). But when *each* follows the verb with *we* as its subject, the rule has an exception. One may say either *We boys have each our own room* or *We boys have each his own room,* though the latter form may strike readers as stilted. • The expression *each and every* is likewise followed by a singular verb and, at least in formal style, by a singular pronoun: *Each and every driver knows* (not *know*) *what his or her* (not *their*) *job is to be.* See Usage Notes at **every, they.**

each other *pron.* Each the other. Used to indicate that a relationship or an action is reciprocal among the members of the set referred to by the antecedent: *The boys like each other.*

Usage Note It is often maintained that *each other* should be used to denote a reciprocal relation between two entities, with *one another* reserved for more than two: thus *The twins dislike each other* but *The triplets dislike one another.* Sixty-four percent of Usage Panelists say that they follow this rule in their own writing. But it should be pointed out that many reputable writers from Samuel Johnson onward have ignored the rule and that the use of *each other* for more than two, or of *one another* for two, cannot be considered incorrect. In particular, there are contexts in which *each other* and *one another* are subtly different in meaning. When speaking of an ordered series of events or stages, *one another* is the preferred form. Thus the sentence *The waiters followed one another into the room* was preferred by 73 percent of the Usage Panel to the sentence *The waiters followed each other into the room.* • *Each other* should not be used as the subject of a clause in writing. Instead of *We always know what each other is thinking,* one should write *Each of us knows what the other is thinking.* • The possessive forms of *each other* and *one another* are written *each other's* and *one another's: The boys wore each other's* (not *each others'*) *coats. They had forgotten one another's* (not *one anothers'*) *names.*

ea•ger¹ (ē/gər) *adj.* **-ger•er, -ger•est 1.** Having or showing keen interest, intense desire, or impatient expectancy. See Usage Note at **anxious. 2.** *Obsolete* Tart; sharp; cutting. [Middle English *eger*, sour, sharp, impetuous, from Anglo-Norman *egre*, from Latin *ācer.* See **ak-** in Appendix I.] **—ea/ger•ly** *adv.* **—ea/ger•ness** *n.*

ea•ger² (ē/gər, ā/gər) *n.* Variant of **eagre.**

eager beaver *n. Informal* One that is exceptionally, often excessively industrious or zealous: *"The eager beavers of industry seldom reach their potential, much less rise to the top"* (Newsweek). **—ea/ger-bea/ver** (ē/gər-bē/vər) *adj.*

ea•gle (ē/gəl) *n.* **1.** Any of various large diurnal birds of prey of the family Accipitridae, including members of the genera *Aquila* and *Haliaeetus,* characterized by a powerful hooked bill, keen vision, long broad wings, and strong soaring flight. **2.** A representation of an eagle used as an emblem or insignia. **3.** A gold coin formerly used in the United States, stamped with an eagle on the reverse side and having a face value of ten dollars. **4.** *Sports* A golf score of two strokes under par on a hole. ✦ *v.* **-gled, -gling, -gles** *Sports* —*tr.* To shoot (a hole in golf) in two strokes under par. —*intr.* To score an eagle in golf. [Middle English *egle,* from Anglo-Norman, from Old Provençal *aigla,* from Latin *aquila.*]

eagle eye *n.* **1.** Keen eyesight. **2.** The ability or tendency to observe closely or pay attention to detail: *monitors expenses with an eagle eye.* **3.** One that observes with close attention. **—ea•gle-eyed** (ē/gəl-īd/) *adj.*

eagle owl *n.* A large Eurasian owl (*Bubo bubo*) having brownish plumage and prominent ear tufts.

eagle ray *n.* Any of numerous rays of the family Myliobatidae, found in tropical and subtropical shallow seas and noted for their massive jaws and large winglike pectoral fins, which they flap for propulsion.

Ea•gle Scout (ē/gəl) *n.* One who has achieved the highest rank in the Boy Scouts.

ea•glet (ē/glit) *n.* A young eagle.

ea•gre also **ea•ger** (ē/gər, ā/gər) *n.* See **bore³.** [Origin unknown.]

Ea•kins (ā/kĭnz), **Thomas** 1844–1916. American painter known for highly realistic works, such as *Max Schmitt in a Single Scull* (1871).

eal•dor•man (ôl/dər-mən) *n.* The chief magistrate of a district in Anglo-Saxon England. [Old English. See ALDERMAN.]

Eames (ēmz), **Charles** 1907–1978. American designer noted for an innovative series of chairs made of aluminum tubing and molded plywood.

Eames chair A trademark used for a functional chair, originally of molded plywood, with seat and back pieces shaped to the contours of the human body.

ear¹ (îr) *n.* **1.** *Anatomy* **a.** The vertebrate organ of hearing, responsible for maintaining equilibrium as well as sensing sound and divided in mammals into the external ear, the middle ear, and the inner ear. **b.** The part of this organ that is externally visible. **2.** An invertebrate organ analogous to the mammalian ear. **3.** The sense of hearing: *a sound that grates on the ear.* **4.** Sensitivity or receptiveness to sound, especially: **a.** Sharpness or refinement of hearing: *a singer with a good ear for harmony.* **b.** The ability to play a passage of music solely from hearing it: *plays the piano by ear.* **c.** Responsiveness to the sounds or forms of spoken language: *a writer with a good ear for dialogue; has an ear for foreign languages.* **5.** Sympathetic or favorable attention: *"[The President] wavers between the two positions, depending on who last had his ear"* (Joseph C. Harsch). **6.** Something resembling the external ear in position or shape, especially: **a.** A flexible tuft of feathers located above the eyes of certain birds, such as owls, that functions in visual communication but not in hearing. Also called *ear tuft.* **b.** A projecting handle, as on a vase or pitcher. **7.** A small box in the upper corner of the page in a newspaper or periodical that contains a printed notice, such as promotional material or weather information. **8. ears** *Informal* Headphones. **—idioms: all ears** Acutely attentive: *Tell your story—we're all ears!* **coming out of (one's) ears** In more than adequate amounts; overabundant. **give (or**

eagle ray
spotted eagle ray
Aetobatus narinari

Eames chair

ear¹
A. auricle
B. semicircular canals
C. cochlea
D. cochlear nerve
E. Eustachian tube
F. eardrum
G. ear canal

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turer who patented (1851) a sewing machine capable of making continuous stitches.

Sing•ha•lese (sĭng′gə-lēz′, -lēs′) n. & adj. A variant of **Sinhalese**.

sin•gle (sĭng′gəl) adj. **1.** Not accompanied by another or others; solitary. **2a.** Consisting of one part, aspect, or section: a single thickness; a single serving. **b.** Having the same application for all; uniform: a single moral code for all. **c.** Consisting of one in number: She had but a single thought, which was to escape. **3.** Not divided; unbroken: a single slab of ice. **4a.** Separate from others; individual and distinct: Every single child will receive a gift. **b.** Having individual opponents; involving two individuals only: single combat. **5a.** Honest; undisguised: a single adoration. **b.** Wholly attentive: You must judge the contest with a single eye. **6.** Designed to accommodate one person: a single bed. **7a.** Unmarried. **b.** Lacking a partner: a single parent. **c.** Relating to the unmarried state: enjoys the single life. **d.** Of or relating to celibacy. **8.** Botany Having only one rank or row of petals: a single flower. ✦ n. **1.** One that is separate and individual. **2.** An accommodation for one person, as in a hotel. **3a.** An unmarried person. **b.** singles Unmarried persons considered as a group: a bar for singles. **4.** A one-dollar bill. **5a.** A phonograph record, especially a forty-five, having one song on each side. **b.** A song on one of these sides. **c.** A song, often from a full-length album or compact disk, that is released for airplay. **6.** Baseball A hit by which a batter reaches first base safely; a one-base hit. **7.** Sports **a.** A hit for one run in cricket. **b.** A golf match between two players. **c.** A tennis or badminton match between two players. Often used in the plural. **d.** singles A competition in which individuals compete against each other, as in rowing or figure skating. ✦ v. **-gled, -gling, -gles** —tr. **1.** To choose or distinguish from others. Often used with out: We singled her out from the list of applicants. **2.** Baseball **a.** To cause (a base runner) to score or advance by making a one-base hit: singled him to second. **b.** To cause the scoring of (a run) by a one-base hit. —intr. Baseball To make a single. [Middle English sengle, from Old French, from Latin singulus. See sem-¹ in Appendix I.] —**sin′gle•ness** n.

single blind n. A testing procedure in which the administrators do not tell the subjects if they are being given a test treatment or a control treatment in order to avoid bias in the results. —**sin′gle-blind′** (sĭng′gəl-blīnd′) adj.

single bond n. A covalent bond in which one electron pair is shared by two atoms.

sin•gle-breast•ed (sĭng′gəl-brĕs′tĭd) adj. Closing with a narrow overlap and fastened down the front with a single row of buttons: a single-breasted suit.

sin•gle-cell protein (sĭng′gəl-sĕl′) n. Abbr. **SCP** A protein extracted from cultured algae, yeasts, or bacteria and used as a substitute for protein-rich foods, especially in animal feeds.

single cross n. Genetics The hybrid of two inbred lines. It can be represented as AB, the product of the cross A × B, where A and B represent inbred lines.

single entry n. A system of bookkeeping in which a business keeps only a single account showing amounts due and amounts owed.

sin•gle-fam•i•ly (sĭng′gəl-făm′ə-lē, -făm′lē) adj. Relating to or being a dwelling designed for one family only: a single-family home; single-family occupancy.

single file n. A line of people, animals, or things standing or moving one behind the other. Also called Indian file. —**single file** adv.

sin•gle-foot (sĭng′gəl-fŏŏt′) n. A rapid gait of a horse in which each foot strikes the ground separately; the rack. No longer in technical use. ✦ intr.v. **-foot•ed, -foot•ing, -foots** To go at the single-foot. —**sin′gle-foot′er** n.

sin•gle-hand (sĭng′gəl-hănd′) tr.v. **-hand•ed, -hand•ing, -hands** To sail (a boat) without the help of others: "a business executive who single-hands her own small cruising cutter" (Tony Gibbs). —**sin′gle-hand′er** n.

sin•gle-hand•ed (sĭng′gəl-hăn′dĭd) adj. **1.** Working or done without help; unassisted. **2.** Intended for use with one hand. **3.** Having or using only one hand. ✦ adv. In a single-handed manner. —**sin′gle-hand′ed•ly** adv. —**sin′gle-hand′ed•ness** n.

sin•gle-heart•ed (sĭng′gəl-här′tĭd) adj. Sincere and dedicated. —**sin′gle-heart′ed•ly** adv. —**sin′gle-heart′ed•ness** n.

sin•gle-hood (sĭng′gəl-hŏŏd′) n. The state of being unmarried.

sin•gle-is•sue (sĭng′gəl-ĭsh′ŏŏ) adj. Of, relating to, or concerned with a single public issue, especially a controversial one, to the exclusion of all other issues: single-issue groups; single-issue politics.

single knot n. See overhand knot.

sin•gle-lens reflex (sĭng′gəl-lĕnz′) adj. Abbr. **SLR** Of or designating a form of reflex camera in which the reflecting mirror retracts when the shutter is released.

sin•gle-mind•ed (sĭng′gəl-mīn′dĭd) adj. **1.** Having one overriding purpose or goal: the single-minded pursuit of money. **2.** Steadfast; resolute: He was single-minded in his determination to stop smoking. —**sin′gle-mind′ed•ly** adv. —**sin′gle-mind′ed•ness** n.

sin•gle-phase (sĭng′gəl-fāz′) adj. Producing, carrying, or powered by a single alternating voltage.

singles bar (sĭng′gəlz) n. A bar patronized especially by unmarried men and women.

sin•gle-sex (sĭng′gəl-sĕks′) adj. Same-sex.

sin•gle-space (sĭng′gəl-spās′) v. **-spaced, -spac•ing, -spac•es** —tr. To type, print, or format (copy) without leaving a blank line between lines. —intr. To type, print, or format copy without leaving a blank line between lines.

single standard n. A set of principles with the same standard for all, especially regarding the sexual behavior of both men and women.

sin•gle•stick (sĭng′gəl-stĭk′) n. **1.** A one-handed fencing stick fitted with a hand guard. **2.** The art, sport, or exercise of fencing with such a stick.

sin•gle•stick•er (sĭng′gəl-stĭk′ər) n. A sailboat with one mast; a sloop.

sin•glet (sĭng′glĭt) n. **1.** Chiefly British A man's jersey undershirt. **2.** Physics A multiplet with a single member.

single tax n. A system by which all revenue is derived from a tax on one thing, especially land.

sin•gle•ton (sĭng′gəl-tən) n. **1.** Games A playing card that is the only one of its suit in a player's hand. **2a.** An individual separated or distinguished from two or more of its group. **b.** An offspring born alone. [From the name Singleton (influenced by SINGLE).]

sin•gle-track (sĭng′gəl-trăk′) adj. **1.** Having just one track: single-track railway. **2.** Lacking mental range or flexibility; one-track: a single-track mind.

sin•gle•tree (sĭng′gəl-trē′) n. See whiffletree. [Alteration (influenced by DOUBLETREE) of SWINGLETREE.]

sin•gle•wide (sĭng′gəl-wīd′) n. A mobile home 14 feet (4.3 meters) in width, used as a permanent residence. —**sin′gle•wide′** adj.

sin•gly (sĭng′glē) adv. **1.** Without the presence of others; alone. **2.** Without the help of others; single-handed. **3.** One by one; individually.

sing•song (sĭng′sông′, -sŏng′) n. **1.** Verse characterized by mechanical regularity of rhythm and rhyme. **2.** A monotonously rising and falling inflection of the voice. ✦ adj. Monotonous in vocal inflection or rhythm. —**sing′song′y** adj.

sing•spiel (sĭng′spēl′, zĭng′shpēl′) n. An 18th-century German musical comedy featuring songs and ensembles interspersed with dialogue. [German : singen, to sing (from Middle High German, from Old High German singan; see seng*h- in Appendix I) + Spiel, play; see SPIEL.]

sin•gu•lar (sĭng′gyə-lər) adj. **1.** Being only one; individual. **2.** Being the only one of a kind; unique. **3.** Being beyond what is ordinary or usual; remarkable. **4.** Deviating from the usual or expected; odd. See synonyms at strange. **5.** Grammar **a.** Of, relating to, or being a noun, pronoun, or adjective denoting a single person or thing or several entities considered as a single unit. **b.** Of, relating to, or being a verb expressing the action or state of a single subject. **6.** Logic Of or relating to the specific as distinguished from the general; individual. ✦ n. Grammar **1.** The singular number or a form designating it. **2.** A word having a singular number. [Middle English singuler, from Old French, from Latin singulāris, from singulus, single. See SINGLE.] —**sin′gu•lar•ly** adv. —**sin′gu•lar•ness** n.

sin•gu•lar•i•ty (sĭng′gyə-lăr′ĭ-tē) n., pl. **-ties 1.** The quality or condition of being singular. **2.** A trait marking one as distinct from others; a peculiarity. **3.** Something uncommon or unusual. **4.** Astrophysics A point in space-time at which gravitational forces cause matter to have infinite density and infinitesimal volume, and space and time to become infinitely distorted. **5.** Mathematics A point at which the derivative does not exist for a given function but every neighborhood of which contains points for which the derivative exists. Also called singular point.

sin•gu•lar•ize (sĭng′gyə-lə-rīz′) tr.v. **-ized, -iz•ing, -iz•es** To make conspicuous; distinguish.

singular point n. See singularity (sense 5).

sin•gu•la•tive (sĭng′gyə-lə-tĭv, -lə-tĭv) adj. Of or relating to a linguistic form or construction that expresses a singular entity, often as opposed to a collective, such as rice-grain as opposed to rice. ✦ n. A singulative form or construction. [French singulatif, from Latin singillātim, singulātim, one at a time, singly, from singulus, single. See SINGLE.]

sinh abbr. hyperbolic sine

Sin•ha•la (sĭn-hä′lə) n., pl. Sinhala or -las **1.** A Sinhalese. **2.** The Sinhalese language. [Sinhala Siṃhala, from Sanskrit siṃhalaḥ, Sri Lanka, from siṃhaḥ, lion (perhaps from the former presence of lions there).]

Sin•ha•lese (sĭn′hə-lēz′, -lēs′) also **Sing•ha•lese** (sĭng′gə-lēz′, -lēs′) n., pl. Sinhalese or Singhalese **1.** A member of a people constituting the majority of the population of Sri Lanka. **2.** The Indic language of the Sinhalese that is the chief language of Sri Lanka. ✦ adj. Of or relating to Sri Lanka, the Sinhalese, or their language or culture. [Sanskrit Siṃhalam, Sri Lanka + -ESE.]

Si•ni•cism (sĭn′ĭ-sĭz′əm, sīn′ĭ-) n. A custom or trait peculiar to the Chinese. [From Sinic, Chinese, from Medieval Latin Sīnicus, from Late Latin Sinae, the Chinese. See SINO-.]

Si•ni•cize (sĭn′ĭ-sīz′, sīn′ĭ-) tr.v. **-cized, -ciz•ing, -ciz•es** To make Chinese in character or to change or modify by Chinese influence. —**Si′ni•ci•za′tion** (-sĭ-zā′shən) n.

Si•ni•fy (sĭn′ə-fī′, sīn′ə-) tr.v. **-fied, -fy•ing, -fies** To Sinicize. [Late Latin Sinae, the Chinese; see SINO- + -FY.] —**Si′ni•fi•ca′tion** (-fĭ-kā′shən) n.

sin•is•ter (sĭn′ĭ-stər) adj. **1.** Suggesting or threatening evil: a sinister smile. **2.** Presaging trouble; ominous: sinister storm clouds. **3.** Attended by or causing disaster or inauspicious circumstances. **4.** On the left side; left. **5.** Heraldry Situated on or being the side of a shield on the wearer's left and the observer's right. [Middle English sinistre, unfavorable, from Old French, from Latin sinister, on the left, unlucky.] —**sin′is•ter•ly** adv. —**sin′is•ter•ness** n.

Synonyms sinister, baleful, malign These adjectives apply to what is indicative of or threatens great harm, disaster, or evil. Sinister usually implies impending or lurking danger that makes its presence felt by ominous signs or portents: We heard a sinister laugh from behind the door. Baleful intensifies the sense of menace; it suggests a deadly, virulent, and poisonous quality: The guard's baleful glare frightened the children. Malign applies to what manifests an evil disposition, nature, influence, or

Isaac M. Singer

single-breasted
single-breasted blazer

ă pat	oi boy
ā pay	ou out
âr care	ŏŏ took
ä father	ŏŏ boot
ĕ pet	ŭ cut
ē be	ûr urge
ĭ pit	th thin
ī pie	th this
îr pier	hw which
ŏ pot	zh vision
ō toe	ə about, item
ô paw	✦ regionalism

Stress marks: ′ (primary);
′ (secondary), as in
dictionary (dĭk′shə-nĕr′ē)

EXHIBIT 9

TO

RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS

Certain Unified Communications   No. 337-TA-598 (O/C)   October 10, 2007

Heritage Reporting Corporation

Page 367 to Page 759

CONDENSED TRANSCRIPT AND CONCORDANCE
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(1) used as a computer connection for the user in

(2) this case to enter user-selectable criteria.

(3) So to me it is very clear that the

(4) specification of the Liffick patent or the

(5) addresses that issue a telephone line can be

(6) used for computer communication, and that they

(7) don't have to be physically separate.

(8) Furthermore, there is additional

(9) reference on the '439 patent at column 6, line

(10) 52 and the '289 patent at column 6, line 59,

(11) where the inventor stated, "the network link

(12) 156 is a computer-to-computer connection that

(13) may simply use a telephone as the physical

(14) layer to establish the network link."

(15) Again, this is additional proof that

(16) even in the patent itself, the inventor

(17) specifically stated that telephone wire can be

(18) used to establish computer connection. And

(19) once again supporting my position that the word

(20) independent does not have to mean physically

(21) separate.

(22)   Q.   Thank you. If we can turn to the

(23) second disputed term now, which is activity.

(24) And I will direct your attention to CDX-28.

(25)   A.   Sure. On CDX-28 I don't want to

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(1) repeat what I said earlier today so basically

(2) the term under dispute is the term activity,

(3) what does activity really mean. My definition

(4) or Microsoft's definition is that the term

(5) activity simply means status, it is a state of

(6) the computer.

(7) And in the case of ABS, ABS and also

(8) the staff's proposed construction is that the

(9) word activity should be limited to only active

(10) or idle. And so I think that that's where the

(11) major differences are.

(12)   Q   In your opinion, how would one of

(13) ordinary skill in the art interpret the term

(14) "activity" as used in the '289 patent?

(15)   A.   I believe it should be simply a

(16) status, as the term activity has no specific

(17) meaning in our industry

(18)   Q.   Did you rely on the specification to

(19) reach your opinion?

(20)   A.   Sure. Next slide, please.

(21)   Q.   Can you describe what is shown on

(22) CDX-29?

(23)   A.   Sure. Again, the next few slides I

(24) will be talking about, I will be focused on the

(25) word, the meaning of the word "activity" in the

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(1) context of the '289 patent because in the '439

(2) patent, both parties already agreed that the

(3) word activity should mean status.

(4) So in the '289 patent, page CDX-29, I

(5) have reproduced column 14, line 2 to 3 where

(6) the inventor stated "a system 100 can monitor

(7) the status or activity of both the caller and

(8) the callee."

(9) This to me indicated that the word

(10) activity simply means status, plain and simple.

(11)   Q.   Are there other examples in the

(12) specification that you reviewed and relied

(13) upon?

(14)   A.   Sure. Let's go to the next slide,

(15) please.

(16)   Q.   For the record, this is CDX-30. Can

(17) you describe to the Court what you have

(18) provided on this slide?

(19)   A.   On CDX-30 I have listed additional

(20) intrinsic support on the meaning of status.

(21) And here I have some examples that are listed

(22) from the specification from the '289 patent.

(23) The first one is the inventor stated it is

(24) possible to monitor the activity or status of

(25) both the caller and callee. This is the '289

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(1) patent, column 3, line 5 to 6.

(2) The second example would be the '289

(3) patent, at column 14, lines 2 and 3 where the

(4) inventor stated the system 100 can monitor the

(5) status or activity of both the caller and the

(6) callee. And the third example is, again, from

(7) the '289 patent, column 2, line 15 through 18,

(8) where the inventor stated the potential

(9) callee's computer activity may be monitored and

(10) the status of the computer as idle or active.

(11) This is, again, referenced in the '289 patent.

(12) The last example is again from the

(13) '289 patent, column 14, line 37 where the

(14) inventor stated "by monitoring this activity,

(15) the operating system can determine the user's

(16) status and activate certain software programs."

(17) So these are various intrinsic support

(18) for the meaning of the word "activity" to mean

(19) status.

(20)   Q.   Does the '289 patent offer additional

(21) examples or additional types of activity?

(22)   A.   Yes, it did. The next slide, please.

(23)   Q.   Can you state what is shown on CDX-31.

(24)   A.   I have shown additional examples from

(25) the '289 patent that indicate there is all

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(1) kinds of activity that's disclosed in the '289
(2) patent beyond just the simple idle or busy.
(3) The first example is from the '289 patent,
(4) column 2, line 13 through 15 where the inventor
(5) used a term occupied or busy, in parenthesis,
(6) as a form of activity.
(7) And further down the line the
(8) inventor, column 2, line 13 through 15 in the
(9) '289 patent, the inventor used the term
(10) "unwilling to accept (do not disturb)." So
(11) this unwilling to accept or do not disturb is
(12) indicated to me as another form of activity.
(13) And the last example is from column
(14) 16, line 18 and column 17, line 65 through 66
(15) where the inventor stated that the meeting is
(16) another form of activity. So these are various
(17) examples that indicated to me that the term
(18) activity is – it should mean the status of the
(19) user's computer, that the term, the term
(20) activity should not be limited to just the
(21) simple idle or – sorry – active or idle. I
(22) apologize.
(23)   Q.   Just so the record is clear, looking
(24) at the yellow box where you have in parenthesis
(25) busy and do not disturb, that's how you

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(1) interpret the quoted box as being different
(2) states, that's your language; is that correct?
(3)   A.   That's correct.
(4)   Q.   Are there additional examples in the
(5) specification regarding other types of
(6) activity?
(7)   A.   Sure. Next slide, please.
(8)   Q.   And for the record this is CDX-32.
(9)   A.   Thank you. CDX-32, I have listed
(10) another example of activity and this actually
(11) is a portion of the spec that is shared by both
(12) the '439 patent and the '289 patent.
(13) Specifically the inventor referenced a
(14) computerized scheduling program such as the
(15) Microsoft Schedule Plus. And then he went on
(16) to talk about how such a scheduling program can
(17) be accessed via the computer network to
(18) schedule meetings, so this is like a calendar
(19) program of some sort. And the inventor went on
(20) to state that scheduled meetings can be entered
(21) into the affiliation list 150. And the
(22) affiliation list, recall, is the place that
(23) stored all the user-selectable criteria.
(24) And so this is another indication that
(25) this is another form of activity, a

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(1) calendar-based activity in the meeting and so
(2) on and so forth. Another proof to me that the
(3) word activity should be interpreted much more
(4) broadly than simply active or idle.
(5)   Q.   So is it your opinion that a person of
(6) ordinary skill in the art would not limit the
(7) term activity to just idle active?
(8)   A.   That's correct.
(9)   Q.   Now, do you believe the term activity
(10) should be given the same meanings in both the
(11) '439 and '289 patents?
(12)   A.   Sure. The next slide, please.
(13)   Q.   What's your basis for your opinion
(14) that activity should be given the same
(15) interpretation?
(16)   A.   Sure. The basis is very simple.
(17) First of all, the '439 patent and '289 patent,
(18) they were authored by the same person,
(19) Mr. Liffick. They were filed only three weeks
(20) apart. And they share a lot of specifications
(21) in common.
(22) And based on examples I have cited
(23) earlier that, you know, it is my opinion that a
(24) person of ordinary skill in the art would
(25) interpret the activity the same way for the

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(1) '439 patent and the '289 patent.
(2)   Q.   And the parties – is it your
(3) understanding that the parties have already
(4) agreed that with respect to the '439 patent,
(5) the term activity should mean status?
(6)   A.   That's correct.
(7)   Q.   Now that we have discussed some of the
(8) claim construction issues, would you turn to
(9) your opinions regarding infringement?
(10)   THE WITNESS: Your Honor, may I ask
(11) for a break first before we go into the
(12) infringement section?
(13)   JUDGE LUCKERN: No problem. Let's
(14) have a ten-minute break.
(15)   THE WITNESS: Thank you very much.
(16)   (A recess was taken at 10:54 a.m.,
(17) after which the trial resumed at 11:07 a.m.)
(18)   JUDGE LUCKERN: Go ahead,
(19) Ms. Kordziel, with your next question.
(20)   MS. KORDZIEL: Thank you, Your Honor.
(21)   BY MS. KORDZIEL:
(22)   Q.   I would like to direct your attention,
(23) Mr. Chang, to CDX-35.
(24)   A.   Yes.
(25)   Q.   Can you describe what's shown on

Page 759

(1) CERTIFICATION OF TRANSCRIPTION

(2)   TITLE: Certain Unified Communications Systems
         INVESTIGATION NO: 337-TA-598

(3)   HEARING DATE: October 10, 2007
         LOCATION: Washington, D.C

(4)   NATURE OF HEARING: Hearing

(5)

         I hereby certify that the

(6) foregoing/attached transcript is a true, correct, and
     complete record of the above-referenced proceeding(s)

(7) of the U.S. International Trade Commission.
         DATE: October 10, 2007

(8)
         SIGNED: LASHONNE ROBINSON

(9)
         Signature of Contractor or the Authorized

(10) Contractor's Representative
     1220 L Street, N.W, Suite 600

(11) Washington, D.C. 20005

(12) I hereby certify that I am not the Court
     Reporter and that I have proofread the

(13) above-referenced transcript of the proceeding(s) of
     the U.S. International Trade Commission, against the

(14) aforementioned Court Reporter's notes, for accuracy in
     transcription in the spelling, hyphenation,

(15) punctuation and speaker identification, and did not
     make any changes of a substantive nature. The

(16) foregoing/attached transcript is a true, correct, and
     accurate complete transcription of the proceeding(s).

(17)
         SIGNED: JOHN D. LASHER

(18) Signature of Proofreader

(19)
         I hereby certify that I

(20) reported the above-referenced proceeding(s) of the
     U.S. International Trade Commission and caused to be

(21) prepared from my notes of the proceedings a true,
     correct, and complete transcription of the

(22) proceeding(s).

(23)
         SIGNED: KAREN K. BRYNTESON

(24) Signature of Court Reporter

(25)

Certain Unified Communications (O/C)   No. 337-TA-598   October 11, 2007

Heritage Reporting Corporation

Page 760 to Page 1154

CONDENSED TRANSCRIPT AND CONCORDANCE
PREPARED BY:

Page 808

(1)   Q.   It may easier to highlight it so – it

(2)   is easier for me, at least.

(3)   So here in column 14, lines 44 to 49,

(4)   it describes figure 3 as – well, the first

(5)   sentence says "in one embodiment, the computer

(6)   – implemented control center has two views,

(7)   the minimized view and the full view," correct?

(8)   A.   Correct.

(9)   Q.   So figure 3 is described as the

(10)   minimized view, right?

(11)   A.   Correct.

(12)   Q.   And figure 4, if we look here, picking

(13)   up right about there, we can just highlight the

(14)   whole paragraph, it is easier at this point in

(15)   time.

(16)   So with respect to figure 4, picking

(17)   up in column 14 at about line 51, it says "in

(18)   the full view, e.g., figure 4 in one

(19)   embodiment, the computer-implemented control

(20)   center additionally add explanations and

(21)   detailed routing choices. If desired an

(22)   authentication procedure may be implemented

(23)   with either the minimized view or the full view

(24)   to ensure that the person making editing

(25)   changes in the communications options is

Page 809

(1)   properly authorized." Do you see that?

(2)   A.   Yes.

(3)   Q.   So figure 3 is described as a

(4)   minimized view in the specification and figure

(5)   4 is described as a full view, correct?

(6)   A.   Correct.

(7)   Q.   All right. So when you read the

(8)   language, the full view, you understand that

(9)   that does not provide access to all the

(10)   options; is that right?

(11)   A.   It reads what it reads. Full view is

(12)   just a particular representation of the options

(13)   in the system, so –

(14)   Q.   But you didn't, if we go back to

(15)   CDX-30 –

(16)   A.   You mean 130?

(17)   Q.   130, thank you. You didn't identify

(18)   any options that were displayed in figure 3

(19)   that were not displayed in the full view of

(20)   figure 4, correct?

(21)   A.   No, I did not.

(22)   Q.   Okay. So now what you contend is

(23)   here, focusing on the last thing, options not

(24)   displayed in figure 3 or 4 is these options

(25)   with the drop-down boxes –

Page 810

(1)   A.   Yes.

(2)   Q.   – you say that those options are not

(3)   accessed through this screen, correct?

(4)   A.   They are not displayed.

(5)   Q.   They are not displayed –

(6)   A.   Right.

(7)   Q.   – through that screen. Okay. So to

(8)   you a drop-down box on a menu would be a

(9)   different graphical user interface?

(10)   A.   It is one kind of graphical user

(11)   interface, just one type of interface.

(12)   Q.   So having the drop-down boxes is just

(13)   a way to organize a particular graphical user

(14)   interface, correct?

(15)   A.   I think the key point here is the

(16)   built-in display options that the users see

(17)   these options, so the options were hidden then

(18)   to me they are not visible, correct?

(19)   Q.   So that's – you base your opinion on -

(20)   the fact that you can't construe it despite the

(21)   language of the prosecution history to require

(22)   that all the options be displayed because in

(23)   figure 4, which is described as the full view,

(24)   you believe there is some of the options that

(25)   are actually accessible through drop-down

Page 811

(1)   boxes, correct?

(2)   A.   There will be additional menu action,

(3)   yes.

(4)   Q.   Okay. Now let's focus on JX-3 for a

(5)   moment. That's the patent, the '064 patent.

(6)   A.   Sure.

(7)   Q.   Is it your understanding that the '064

(8)   patent describes a single embodiment?

(9)   A.   What do you mean by a single

(10)   embodiment?

(11)   Q.   A single embodiment of the invention.

(12)   JUDGE LUCKERN: So the question is –

(13)   and answer any way you can – is it your

(14)   understanding that the '064 patent describes a

(15)   single embodiment of the invention?

(16)   THE WITNESS: Yeah, actually the

(17)   question, I am not clear if the term single

(18)   embodiment has any specific meaning in patent

(19)   law or this is just a –

(20)   JUDGE LUCKERN: You don't have any

(21)   understanding of single embodiment in patent

(22)   law, do you?

(23)   THE WITNESS: I don't.

(24)   JUDGE LUCKERN: Move on.

(25)   BY MR. NELSON:

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(1) applicant may actually want to claim a whole

(2) bunch of things but the Patent Office actually

(3) comes back and says, well, no, no, you can't

(4) claim that much, you have got to narrow things

(5) down?

(6)   A.   Yeah, I heard about that.

(7)   Q.   Okay. And you have a few patents of

(8) your own, I think you mentioned, right?

(9)   A.   Correct.

(10)   Q.   So you have been through the process.

(11)   A.   I actually have seen some prosecution

(12) history of my own patents. I apologize, I just

(13) want to clarify that point from earlier.

(14)   Q.   So the process is you may set out

(15) trying to describe something more broadly, and

(16) we know we looked at the original claims,

(17) right? There were fewer limitations in those

(18) original claims, correct?

(19)   A.   There were fewer limitations in the

(20) original claims? Which claim are you talking

(21) about?

(22)   Q.   Yeah. Well, let's just take claim 1.

(23) Original claim 1, we walked through the

(24) history, there were two series of amendments

(25) made to original claim 1.

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(1)   A.   You mean the very first version of

(2) claim 1?

(3)   Q.   Yeah.

(4)   A.   Sure.

(5)   Q.   So the applicant actually started out

(6) and wanted to claim more than what they ended

(7) up with, correct?

(8)   A.   Sure.

(9)   Q.   And with respect to this issue that

(10) we're discussing, specifically they added in

(11) the single graphical menu limitation, the

(12) limitations of dependent claim 23 and the

(13) limitations of dependent claim 24, correct?

(14)   A.   Correct.

(15)   Q.   Okay. Let's talk about the telephony

(16) interface now for a while.

(17)   A.   Sure.

(18)   Q.   I think we have been calling it the

(19) TUI.

(20)   A.   TUI, yes.

(21)   Q.   Let's put up column 18, claim 1.

(22) Let's put up claim 1. Okay. And go down so we

(23) can get to this.

(24) So we have here at the very bottom,

(25) 66, we have a reference to telephony server

Page 826

(1) coupled to exchange data with said

(2) communication profile database. Do you see

(3) that?

(4)   A.   Yes.

(5)   Q.   And then if we continue on, it says

(6) "said telephony server." Now, we talked about

(7) this a little bit yesterday, but "said

(8) telephony server" do you understand this refers

(9) back to this "a telephony server coupled to

(10) exchange data with said communication profile

(11) database"?

(12)   A.   Correct.

(13)   Q.   That's the same telephony server?

(14) This "said telephony server" is the same

(15) telephony server as up here?

(16)   A.   Yes.

(17)   Q.   So here it continues on and says "said

(18) telephony server being configured to audibly

(19) represent said communication options to said –

(20) telephone when said subscriber employs said

(21) telephone to access said computer-implemented

(22) control center." Correct?

(23)   A.   Correct.

(24)   Q.   So let's just focus on this here.

(25) "Said communication options," so that must

Page 827

(1) refer back to something earlier; is that your

(2) understanding?

(3)   A.   To the first occurrence of that term.

(4)   Q.   All right. So let's go up, see if we

(5) can find the first occurrence. All right. So

(6) here it says to customize communication

(7) options. Is that the first occurrence?

(8)   A.   Correct.

(9)   Q.   So now if we look down, let's just

(10) follow this down through the claim. This says

(11) here "said account including said communication

(12) options." Do you see that?

(13)   A.   I'm sorry. Yes.

(14)   Q.   So that refers back to the

(15) communication options that we looked at up here

(16) in lines 24 and 25 of claim 1, correct?

(17)   A.   Correct.

(18)   Q.   So those are the same communication

(19) options?

(20)   A.   Correct.

(21)   Q.   Now, again, it says "said

(22) communication options including parameters

(23) associated," and continues on. This reference,

(24) said communication options, those are the same

(25) communication options as we have in lines 24

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(1) and 25 there of claim 1, correct?

(2) A. Correct.

(3) Q. All right. Now here we have "said

(4) computer server being configured to generate a

(5) single graphical menu for displaying said

(6) communication options." Do you see that?

(7) A. Yes.

(8) Q. So this refers back to the same

(9) communication options, correct?

(10) A. Correct.

(11) Q. All right. So now let's go down to

(12) the – there is a number of others, but let's

(13) go down to the telephony server.

(14) Again, it says, "said telephony server

(15) being configured to audibly represent said

(16) communication options." Do you see that?

(17) A. Yes.

(18) Q. So the reference here in column 19 at

(19) lines 1 and 2 to said communication options is

(20) a reference to the same communication options

(21) that we have up in column 18, lines 4 – column

(22) 18, lines 24 and 25, correct? Right there.

(23) A. Correct.

(24) Q. All right. So now this refers to the

(25) same communications options as this? That's

Page 829

(1) not going to be good on the record. I have to

(2) start that over.

(3) Claim 19 or column 19, lines 1 and 2

(4) where it refers to said communication options

(5) refers to the same communication options

(6) referred to in column 18, lines 24 and 25,

(7) correct?

(8) A. Correct.

(9) Q. Okay. Now scroll down. Now we're in

(10) column 18, lines 40 and 41 where it says "said

(11) computer server being configured to generate a

(12) single graphical menu for displaying said

(13) communication options," so the reference to

(14) "said communications options" in column 18,

(15) lines 40 and 41 refers to the same

(16) communications options as we have in column 18,

(17) lines 24 and 25, correct?

(18) A. Correct.

(19) Q. All right. So column 19, the

(20) reference to "said communications options" of

(21) the telephony server is the same as the

(22) reference to communication options in column

(23) 18, lines 24 and 25, correct?

(24) A. Correct.

(25) Q. And the reference to said

Page 830

(1) communication options in the single graphical

(2) menu for displaying said communication options

(3) referred to in 40-41 is the same as 24 and 25,

(4) correct?

(5) A. Correct.

(6) Q. All right. So then the communication

(7) options referred to here in a single graphical

(8) menu for displaying said communication options

(9) must be the same as the communication options

(10) that are referred to here where it says said

(11) telephony server being configured to represent

(12) said communication options, correct?

(13) A. I didn't come to that conclusion.

(14) Q. Okay. So let's call this C. The

(15) communication options in column 19, lines 1 and

(16) 2, all right, just for purposes of the

(17) question, let's refer to those as C. All

(18) right?

(19) A. You mean the said communication

(20) options on column 19, line 1 and 2?

(21) Q. Yes.

(22) A. You give it a name, C?

(23) Q. I want to give it a name, C.

(24) A. Okay, works for me.

(25) Q. Now these, the communication options

Page 831

(1) referred to in lines 24, 24 and 25 of column

(2) 18, I want to call those A. Okay?

(3) A. Sure.

(4) Q. All right. And the communication

(5) options that are referred to here in a single

(6) graphical menu for displaying said

(7) communication options in 40 and 41 of column

(8) 18, I want to call those B.

(9) A. Absolutely.

(10) Q. Okay. So we have already talked about

(11) that A is the same as B, correct?

(12) A. Sure.

(13) Q. And we also talked about that A is the

(14) same as C, correct?

(15) A. Let me – I know where you are going.

(16) Let me just clarify this A's and B's and C's.

(17) Again, I am offering my interpretation or my

(18) opinions about the term "said communication

(19) options." Let me restate my opinion. My

(20) opinion is that the term "said communication

(21) options" all refer back to the first occurrence

(22) of communication options in the preamble

(23) section of this claim.

(24) However, when I say refer back to the

(25) first occurrence, I am not necessarily saying

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(1) you claim to be an infringement scenario where

(2) the user actually was determined to be

(3) available to take the call, correct?

(4)   A.   No, that's not correct. And for the

(5) Court's convenience, I only highlighted the

(6) portion that I think is extremely relevant to

(7) my illustration. And otherwise probably the

(8) most of the claim language on CDX-75 would have

(9) appeared red.

(10)   Q.   Well, we just looked at the problem

(11) that the inventor was trying to solve, right?

(12)   A.   Correct.

(13)   Q.   And the inventor said it is bad to

(14) call people when they are not available because

(15) then it wastes resources, right?

(16)   A.   Absolutely.

(17)   Q.   And in your example here, what you

(18) have highlighted is an example where based upon

(19) what you claim to be the monitored activity of

(20) the user computer, the call is routed away from

(21) the user, correct?

(22)   A.   Because the user is busy.

(23)   Q.   The user is unavailable?

(24)   A.   Correct, user is on the phone.

(25)   Q.   And so you said you highlighted the

Page 961

(1) language that you thought was important, right?

(2)   A.   Correct.

(3)   Q.   So to determine when the second party

(4) is available to take the call originated by the

(5) first party, that language in the claim you

(6) didn't think was important, right?

(7)   A.   Well, I think it was less important.

(8) Otherwise, I don't want to – again, I only

(9) want to highlight the portion of the language

(10) that was most relevant to the diagram that I

(11) was trying to show the Court. I didn't mean to

(12) say that everything that's relevant in this

(13) particular slide needs to be highlighted on the

(14) left-hand side. That was not the intent.

(15)   Q.   Well, isn't that language to determine

(16) when the second party is available to make the

(17) call originated by the first party very

(18) important to the problem that the inventor

(19) described in the background of the invention

(20) section that we just read?

(21)   A.   Of course. But in order to go to that

(22) step you need to pass through Roman numeral II,

(23) information regarding monitored activity of the

(24) user computer of the second party. It is only

(25) after you get that information that you can

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(1) determine where the call is supposed to go.

(2)   Q.   Understood. But it is – what it says

(3) is the process information regarding the

(4) monitored activity of the user computer of the

(5) second party to determine when the second party

(6) is available to take the call originated by the

(7) first party, right?

(8)   A.   I'm sorry, you lost me. Where were

(9) you?

(10)   Q.   I am reading from your slide, CDX-75.

(11)   A.   I'm sorry. Could you repeat that,

(12) please?

(13)   JUDGE LUCKERN: Yes. The question was

(14) as follows: "Understood. But it is – what it

(15) says is the process information regarding the

(16) monitored activity of the user computer of the

(17) second party to determine when the second party

(18) is available to take the call originated by the

(19) first party, right?" And Mr. Nelson was

(20) reading from the demonstrative exhibit of

(21) Complainant number 75.

(22)   THE WITNESS: Thank you, Your Honor.

(23) That's correct.

(24)   BY MR. NELSON:

(25)   Q.   So the claim lays out a specific

Page 963

(1) purpose for processing the information

(2) regarding the monitored activity of the user

(3) computer of the second party, correct?

(4)   A.   Correct.

(5)   Q.   But that language that laid out the

(6) specific purpose that we just established was

(7) very important to the problem that the inventor

(8) said he was trying to solve is not something

(9) that you highlighted, correct?

(10)   A.   It is not highlighted in this

(11) particular slide. It doesn't mean that it is

(12) not important.

(13)   Q.   And it is not illustrated in this

(14) particular slide, it doesn't happen, right?

(15)   A.   Counsel, I have included probably four

(16) or five, six slides for each of the claims, and

(17) –

(18)   Q.   I understand, but you haven't included

(19) a slide that shows the Court how that language

(20) is satisfied, have you?

(21)   A.   No. I think, you know, let's go back

(22) to CDX-75. If you look at the last paragraph,

(23) using information processed at a computer

(24) network to facilitate connecting the call.

(25) Isn't that ultimate purpose of this invention,

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	EXHIBIT NO:	MARKED	RECEIVED
(1)			
(2)	COMPLAINANTS		
(3)	CDX-217		1074
(4)	CDX-218		1074
(5)	CDX-219		1074
(6)	CDX-220		1074
(7)	CDX-221		1074
(8)	CDX-222		1074
(9)	CDX-223		1074
(10)	CDX-224		1074
(11)	CDX-225		1075
(12)	CDX-226		1075
(13)	CDX-227		1075
(14)	CDX-228		1075
(15)	CDX-229		1075
(16)	CDX-230		1075
(17)	CDX-231		1075
(18)	CDX-232		1075
(19)	CDX-233		1075
(20)	CDX-234		1075
(21)	CDX-235		1075
(22)	CDX-236		1075
(23)	CDX-237		1075
(24)	CDX-238		1075
(25)	CDX-239		1075

Page 1153

	EXHIBIT NO:	MARKED	RECEIVED
(1)			
(2)	COMPLAINANTS		
(3)	CDX-240		1075
(4)	CDX-241		1075
(5)	CDX-242		1075
(6)	CDX-243		1075
(7)	CDX-244		1075
(8)	CDX-245		1075
(9)	CDX-246		1075
(10)	CDX-247		1075
(11)	CDX-248		1075
(12)	CDX-249		1075
(13)			
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(20)			
(21)			
(22)			
(23)			
(24)			
(25)			

Page 1154

(1)   CERTIFICATION OF TRANSCRIPTION

(2)   TITLE: Certain Unified Communications Systems
          INVESTIGATION NO: 337-TA-598

(3)   HEARING DATE: October 11, 2007
       LOCATION: Washington, D.C

(4)   NATURE OF HEARING: Hearing

(5)

       I hereby certify that the

(6)   foregoing/attached transcript is a true, correct, and
       complete record of the above-referenced proceeding(s)

(7)   of the U.S. International Trade Commission.
          DATE: October 11, 2007

(8)

       SIGNED: LASHONNE ROBINSON

(9)

       Signature of Contractor or the Authorized

(10)   Contractor's Representative
       1220 L Street, N.W, Suite 600

(11)   Washington, D.C. 20005

(12)   I hereby certify that I am not the Court
       Reporter and that I have proofread the

(13)   above-referenced transcript of the proceeding(s) of
       the U.S. International Trade Commission, against the

(14)   aforementioned Court Reporter's notes, for accuracy in
       transcription in the spelling, hyphenation,

(15)   punctuation and speaker identification, and did not
       make any changes of a substantive nature. The

(16)   foregoing/attached transcript is a true, correct, and
       accurate complete transcription of the proceeding(s).

(17)

       SIGNED: JOHN D. LASHER

(18)   Signature of Proofreader

(19)

       I hereby certify that I

(20)   reported the above-referenced proceeding(s) of the
       U.S. International Trade Commission and caused to be

(21)   prepared from my notes of the proceedings a true,
       correct, and complete transcription of the

(22)   proceeding(s).

(23)

       SIGNED: KAREN K. BRYNTESON

(24)   Signature of Court Reporter

(25)

Certain Unified Communications (O/C)   No. 337-TA-598   October 15, 2007

Heritage Reporting Corporation

Page 1545 to Page 1956

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(1)   Q.   I would like to direct your attention

(2)   to CRX-8 at MSAL 05059589. Can you describe

(3)   what this document is?

(4)   A.   This document is a document produced

(5)   by Cisco Systems. Cisco, as we may know, is

(6)   one of the leaders in telecommunications. And

(7)   this is a document from Cisco Systems that

(8)   describes unified messaging. And specifically

(9)   I want to highlight the top page which is

(10)   labeled POP versus IMAP.

(11)   Again, this is an independent document

(12)   from a third-party, from an industry leader in

(13)   this field and this is how they describe POP

(14)   and IMAP in the case of unified messaging. For

(15)   the Court's convenience, POP stands for post

(16)   office protocol. I think we have went through

(17)   this term a couple times during

(18)   Mr. Hyde-Thomson's testimony. And so POP is

(19)   one kind of protocol or e-mail access, for

(20)   instance, that allows messages to be retrieved

(21)   from an e-mail server. And on the right-hand

(22)   side, I have shown another protocol called

(23)   IMAP. IMAP stands for Internet message access

(24)   protocol. It is another kind of e-mail

(25)   protocol used by a lot of unified messaging

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(1)   vendors.

(2)   So what is the significance of this

(3)   slide? This slide is basically showing that

(4)   the POP protocol, the P-O-P protocol is not

(5)   appropriate for unified messaging as we have

(6)   constructed the term unified messaging to mean

(7)   in this case.

(8)   Essentially how POP works is that --

(9)   notice the explanation. Can we highlight the

(10)   explanation of pulse all messages to PC and

(11)   deletes from server in the POP box? Thank you.

(12)   So the way POP works is that when the user uses

(13)   the POP protocol to retrieve let's say an

(14)   e-mail message, it essentially removes all the

(15)   messages from the PC -- I'm sorry, through the

(16)   PC and deletes messages from the server.

(17)   So I'm sure many of us are familiar

(18)   with Microsoft Outlook, for instance, as a

(19)   possible e-mail client that speaks to POP

(20)   protocol. And then using the POP protocol you

(21)   see e-mails, once the e-mails are POP'd, so to

(22)   speak, from the e-mail server, those messages

(23)   are no longer kept on the server.

(24)   So what does that mean? That means

(25)   that once these messages are retrieved by the

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(1)   POP protocol through the e-mail client, these

(2)   messages are no longer retrievable by any other

(3)   devices that the user has. For instance, I

(4)   remember from the testimony of Mr. Hyde-Thomson

(5)   on Friday that he has over 25,000 e-mails POP'd

(6)   on to his laptop. And it is my opinion he will

(7)   no longer be able to use unified messaging to

(8)   access those messages anymore. For instance,

(9)   he won't be able to use a telephone to call

(10)   into the unified messaging system to listen to

(11)   those messages anymore.

(12)   And, therefore, that will fail claim

(13)   construction, that the messaging needs to be

(14)   retrieved from any communication device and

(15)   irregardless of the communication devices and

(16)   networks employed for the transmission of the

(17)   messages.

(18)   So POP is a protocol that's used quite

(19)   often in e-mail. Unfortunately, it is just not

(20)   appropriate for unified messaging. The

(21)   protocol that is used most often in unified

(22)   messaging is IMAP, which is identified on the

(23)   right. The way IMAP works is that it has a

(24)   concept of folder and once messages are

(25)   retrieved, using IMAP from the e-mail server, a

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(1)   copy of the message can be kept on the server

(2)   and whatever action the user does to that

(3)   message, for instance, the user can delete that

(4)   message or just simply read the message or

(5)   forward that message, those actions are

(6)   immediately reflected on the message stored on

(7)   the central server, making them available for

(8)   retrieval by another device, like a telephone.

(9)   So we all have experience retrieving

(10)   e-mails. Once we receive the e-mail, the new

(11)   e-mail becomes old e-mail or becomes red. That

(12)   kind of status needs to be reflected when the

(13)   user later on calls in from a telephone and

(14)   accesses the messages. He needs to have

(15)   completely synchronized access between various

(16)   devices or otherwise it would fail the claim

(17)   construction that we have come up with for

(18)   unified messaging.

(19)   So the bottom of this slide, the Cisco

(20)   Systems indicated that IMAP is a key component

(21)   of unified messaging because the messages are

(22)   kept on the server, and it allows multiple

(23)   concurrent access to the same data. So here is

(24)   an industry leader who is stating that POP

(25)   protocol is not appropriate for unified

Page 1801

(1) messaging.

(2) And so this is just one example where

(3) it is my opinion that simply having a POP

(4) protocol would not be sufficient to satisfy the

(5) unified messaging system as we have constructed

(6) the term to mean in this case.

(7) Q. Thank you. Can you now just provide

(8) us a very brief summary of why a message router

(9) is different from a unified messaging system.

(10) A. Sure. Next slide, please.

(11) Q. You can go to slide CDX-275.

(12) A. Actually, before I go to this slide, I

(13) wanted to also testify that from a personal

(14) experience on unified messaging, as you know, I

(15) personally was involved in a number of projects

(16) in unified messaging in both Blue Silicon and

(17) in Carmel Connection. And using POP and IMAP

(18) was the major ones that I personally dealt with

(19) in the late '90s, because using the POP

(20) protocol for message retrieval just simply we

(21) couldn't sell product based on that.

(22) Users demand complete synchronized

(23) access for all devices. And so that was an

(24) issue that was very fresh in my mind. And just

(25) to make the record complete, it is my

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(1) understanding that ABS also uses IMAP protocol

(2) in their implementation of unified messaging,

(3) further supporting my position that POP

(4) protocol is simply not appropriate to Alcatel

(5) as a protocol to satisfy unified messaging from

(6) a claim construction perspective, or really

(7) from an industry perspective. It just simply

(8) is not – you simply cannot use a POP protocol

(9) in unified messaging deployment.

(10) Q. Okay, thank you.

(11) MR. NELSON: Your Honor, can I move to

(12) strike the last answer as nonresponsive?

(13) JUDGE LUCKERN: How do you want to

(14) respond to that, Ms. Kordziel?

(15) MS. KORDZIEL: I believe it is.

(16) JUDGE LUCKERN: Actually, that was

(17) really, though, it was really no question,

(18) though. Yeah, there was actually no question,

(19) it was just testimony from this witness. The

(20) question was, you can go to slide CDX-275.

(21) Well, there was a previous question, though,

(22) can you now just provide us a very brief

(23) summary of why a message router is different

(24) from a unified messaging system.

(25) And then I just don't want to spend

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(1) time, Mr. Chang, reading your answer. Is this

(2) your testimony as to why a message router is

(3) different from a unified messaging system? Do

(4) you understand my question?

(5) THE WITNESS: Sure, it is related

(6) because I was talking about POP protocol and

(7) IMAP and this slide, CDX-275, is once again an

(8) explanation on how the message router and

(9) unified messaging systems are different. And

(10) one of the important distinctions here is the

(11) use of protocols.

(12) JUDGE LUCKERN: Mr. Nelson, do you

(13) stand by your motion to strike?

(14) MR. NELSON: Yes, Your Honor.

(15) JUDGE LUCKERN: Do you have any

(16) comments you want to make before I hear the

(17) position of the staff, Ms. Kordziel?

(18) MS. KORDZIEL: I would just say his

(19) answer is related to what the distinctions are

(20) between POP and IMAP based on his own

(21) experience.

(22) JUDGE LUCKERN: All right. Mr. Lloyd,

(23) what is your position with respect to the

(24) motion to strike?

(25) MR. LLOYD: As you noted, it was –

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(1) there was actually no question pending.

(2) JUDGE LUCKERN: But there was a

(3) previous –

(4) MR. LLOYD: But I do think it was

(5) responsive to the, actually, the second

(6) previous question.

(7) JUDGE LUCKERN: I am going to deny the

(8) motion to strike. You will have the

(9) opportunity for cross, Mr. Nelson. Just

(10) looking at it now, I am going to leave it in,

(11) in relation not to the very previous question,

(12) but to the question before that. Go ahead,

(13) Ms. Kordziel.

(14) MS. KORDZIEL: Thank you, Your Honor.

(15) BY MS. KORDZIEL:

(16) Q. So what are some of the high level

(17) differences, then, between a message router and

(18) messaging system.

(19) A. In CDX-275, I have summarized my

(20) previous testimony from how unified messaging

(21) is different from message router. Specifically

(22) by unified messaging, it maintains storage, so

(23) subscribers can retrieve messages from a number

(24) of devices, and that there is a copy of the

(25) message maintained on the server, so that

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(1) off the record.

(2)   (Discussion off the record.)

(3)   JUDGE LUCKERN: Let's go back on the

(4) public record. Go ahead, Mr. Nelson.

(5)

(6) CROSS-EXAMINATION

(7)

(8)   BY MR. NELSON:

(9)   Q.   So CRX-8. And the page number is MSAL

(10) 05059589. It is that page you were looking at

(11) earlier on your direct.

(12)   A.   Sure.

(13)   Q.   Can we put that up on the screen,

(14) please. Now, you were talking about this, the

(15) top slide there. It is actually marked slide

(16) 23. Here, the post office protocol versus the

(17) IMAP, correct?

(18)   A.   Correct.

(19)   Q.   And let me see if I understand your

(20) testimony. You are saying that in the post

(21) office protocol, you store the e-mails, but

(22) they are deleted when they are retrieved; is

(23) that what you are saying?

(24)   A.   In the post office protocols, the

(25) messages which are stored on the e-mail server,

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(1) once they are received using the POP protocol,

(2) once that process is completed, the message

(3) will be removed from the e-mail server.

(4)   Q.   So they are stored there for some

(5) period of time, correct?

(6)   A.   That's correct.

(7)   Q.   Now, is it your testimony that it is

(8) always the case that the POP servers are set up

(9) like that? In other words, is there no other

(10) way you could set up a POP server?

(11)   A.   There are configurations under POP

(12) where you can configure the POP server to

(13) retain messages for a period of time before

(14) they are removed, once they are retrieved.

(15)   Q.   Okay. So you can store them, you can

(16) retrieve them, and it is possible to set up a

(17) POP server so that you can even retain them for

(18) some period of time after they are retrieved,

(19) correct?

(20)   A.   Once messages are POP'd from the POP

(21) server, there is an option available for the

(22) e-mail messages to be kept on the server for a

(23) period of time.

(24)   Q.   Okay. And so that's something that as

(25) of 1999 one of ordinary skill in the art

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(1) understood, correct?

(2)   A.   That's correct.

(3)   Q.   Now, in fact, I think you testified on

(4) direct that you actually tried to build a

(5) commercial unified messaging system using a POP

(6) server at one period of time, didn't you?

(7)   A.   I think what I said was that we were

(8) struggling with the POP and IMAP issue from my

(9) personal experience at Blue Silicon, because

(10) POP was easy to implement and IMAP was more

(11) difficult to implement.

(12)   Q.   Okay. And what year was that that you

(13) were talking about?

(14)   A.   That was late 1990's. I don't

(15) remember the specific year.

(16)   Q.   Somewhere around that period of time,

(17) yeah?

(18)   A.   Yeah, '98, '99 time frame.

(19)   Q.   So then if I understand your testimony

(20) about the Swartz reference, and that's RX-5,

(21) you are saying that it is not a unified

(22) messaging system because it discloses POP

(23) server for the e-mail as opposed to an IMAP

(24) server, correct?

(25)   A.   No, I think there is other aspects

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(1) of – in the Swartz patent which make it – do

(2) not anticipate the claims for '064 and '357.

(3) You know, I just pointed out unified messaging

(4) as one example.

(5)   Q.   Right. So unified messaging is the

(6) only thing you testified to on direct, correct?

(7)   A.   Well, in my direct, I did talk about

(8) Swartz and how Swartz did not support unified

(9) messaging.

(10)   Q.   Right. And nothing else, correct?

(11)   A.   In my direct, right.

(12)   Q.   Right. So you didn't offer any

(13) opinions that Swartz does not disclose a

(14) telephony server, correct?

(15)   A.   I think in my expert report, I

(16) indicated my opinions in my expert report of

(17) how I disagree with Mr. Hyde-Thomson's initial

(18) report. And I think that where

(19) Mr. Hyde-Thomson did not specifically point out

(20) some of the areas that were disclosed by the

(21) claim limitation, I think I also pointed out in

(22) my report that it wasn't clear what

(23) Mr. Hyde-Thomson was referring to.

(24)   Q.   Okay. And so – but the only thing

(25) that you did point out was your opinion that in

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(1)   A.   If Swartz used the term IMAP instead
(2)   of POP, I would have to go back to Swartz and
(3)   reanalyze the whole patent to make sure I
(4)   understand how, you know, how the IMAP
(5)   implementation would impact the Swartz system.
(6)   Q.   So you don't know one way or the
(7)   other?
(8)   A.   I don't know.
(9)   Q.   It could, you just don't know?
(10)   A.   It could. It may or may not.
(11)   Q.   Okay. Now, on direct, and we can put
(12)   that slide back up there if it helps, which was
(13)   CRX-8.
(14)   A.   Sure.
(15)   Q.   Again, it is slide 23 of the set.
(16)   Now, on direct, you had said that with a POP
(17)   server, once you download things, you cannot go
(18)   back and look at it again. Is that right?
(19)   A.   Once the user uses an e-mail client to
(20)   download his e-mails using the POP protocol
(21)   from the e-mail server, once that process is
(22)   completed, the e-mail messages will be removed
(23)   from the e-mail server.
(24)   Q.   Okay. But you also testified on cross
(25)   that certainly a POP server could be set up to

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(1)   retain the e-mails for a while after they were
(2)   downloaded the first time, correct?
(3)   A.   The way it works is that the user can
(4)   specify the message he retained on a POP
(5)   server, let's say for two days, and after the
(6)   timer is up, all messages are purged
(7)   automatically by the e-mail server.
(8)   Q.   So do you think that there is some
(9)   time limitation, some length of time required
(10)   that a message needs to be stored at the POP
(11)   server in order to be a unified messaging
(12)   system?
(13)   A.   No, there is no specific time
(14)   limitation. I mean, I am not saying that the
(15)   message needs to be there for an hour or two
(16)   days or a week. That's not what I am saying.
(17)   I mean, I think the important thing here is the
(18)   message has to be retained on the e-mail, on
(19)   the message store for sufficiently long period
(20)   of time to allow access or retrieval by these
(21)   other devices until that message is gone, until
(22)   the user specifically requested that I want to
(23)   delete this message, in which case that is
(24)   user's prerogative when he issues a delete
(25)   command, the message is gone because the user

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(1)   has specifically indicated he wants to do that.
(2)   But using POP command, that simply
(3)   allows retrieval on to one device, namely, his
(4)   computer, and, therefore, disabling retrieval
(5)   by all other devices. That's all – that's the
(6)   distinction.
(7)   Q.   So I understand what you are saying
(8)   now. So, for example, at my firm, which uses
(9)   Microsoft Exchange and we use a Cisco system,
(10)   they don't have a unified messaging system
(11)   there because the firm says, hey, Mr. Nelson,
(12)   every 30 days, all the e-mails in your in box
(13)   are going to be gone, right? So that's not a
(14)   unified messaging system?
(15)   A.   Actually, I am not familiar with how
(16)   your firm is set up, counsel. I don't know how
(17)   your Cisco system interacts with your Exchange.
(18)   Q.   Okay. So if the system is set up such
(19)   that my e-mails are automatically deleted every
(20)   30 days, it is not a unified messaging system,
(21)   correct?
(22)   A.   From where?
(23)   Q.   Deleted from the server every 30 days.
(24)   A.   From the server?
(25)   Q.   Yes.

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(1)   A.   Are you using a POP protocol in your
(2)   firm?
(3)   Q.   You are going way beyond my level of
(4)   knowledge.
(5)   A.   I am just trying to answer your
(6)   question. To answer your question, I need to
(7)   understand a little bit better how your IT is
(8)   set up at your firm.
(9)   Q.   Well, does it matter one way or the
(10)   other?
(11)   A.   Well, because the issue we are talking
(12)   about here is POP versus IMAP. And these are
(13)   e-mail protocols. In order for me to answer
(14)   your question accurately, I would need to know
(15)   how your firm's IT infrastructure is set up
(16)   because you asked me questions about, is that
(17)   unified messaging? Well, I don't know, I need
(18)   to understand how your system is set up.
(19)   Q.   Right. But see here on the IMAP side,
(20)   from this slide you had said, and I thought I
(21)   understood you to testify that a big difference
(22)   is the user gets to specify when the e-mail is
(23)   going to be deleted, correct?
(24)   A.   Well, in both cases, the user gets to
(25)   decide how and when the message will be

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(1) deleted. It is just that on the POP side, once
(2) the messages are POP'd, they are gone from the
(3) server like they were gone, the messages are
(4) removed from the server. The message can still
(5) be kept on your local laptop and you can still
(6) carry them around, you know, Mr. Hyde-Thomson
(7) has 25,000 e-mails on his laptop, that's his
(8) prerogative.
(9)   Q.   Right, but that's not – we just
(10) established that the POP server doesn't have to
(11) be set up that way. They can be stored on
(12) there after they are first downloaded, right?
(13)   A.   After a period of time, the user can
(14) specify how long, how many days the messages
(15) can be kept on the POP server, but when the
(16) time expires, the messages are gone.
(17)   Q.   That's the point I am getting at, all
(18) right? In the IMAP protocol, the administrator
(19) can do exactly the same thing, correct?
(20)   A.   I am not sure what you mean by that.
(21)   Q.   Meaning the administrator can decide
(22) that every 15 days, the e-mails that you have
(23) on the server are going to be deleted?
(24)   A.   On the IMAP server?
(25)   Q.   Yes.

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(1)   A.   Sure, the administrator can do
(2) whatever he wants. That is an implementation
(3) issue. That's a policy of the IT department.
(4)   Q.   Okay. So from what you have just said
(5) then, if the IMAP server is implemented so that
(6) the IT people say, I'm going to delete your
(7) e-mails, Mr. Nelson, every 15 days, then that
(8) system, from the e-mail perspective, that we're
(9) talking about now wouldn't be a unified
(10) messaging system, correct?
(11)   A.   It depends on how the rest of the
(12) system is pieced together. I mean, again, you
(13) are referring to an office environment. You
(14) are referring to IT people. You know, I would
(15) need to know how the system is really set up.
(16) And I am not trying to promote IMAP as the
(17) solution to all the problems. All I am trying
(18) to show here on the slide is that POP is not
(19) appropriate protocol for implementing unified
(20) messaging as we have defined it for this case.
(21)   Q.   Now, in the late 1990s, did you
(22) consider yourself one of ordinary skill in the
(23) art of unified messaging?
(24)   A.   Yes, I did.
(25)   Q.   Okay. So you just told us that you

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(1) tried to build a unified messaging system using
(2) a POP server, right?
(3)   A.   I said we were struggling with the
(4) issue of using POP and IMAP.
(5)   Q.   So you didn't know when you set out as
(6) one of ordinary skill in the art whether you
(7) should use POP or IMAP, correct?
(8)   A.   No, I was – we were pretty convinced
(9) IMAP would be the way to go, but there is
(10) implementation costs associated with IMAP, so
(11) we had to take that into account. If we – we
(12) had decided to use POP protocol for our system,
(13) the system would simply not be sellable.
(14)   Q.   So you are saying it is not a unified
(15) messaging system because it wouldn't be
(16) salable?
(17)   A.   No, that's not what I am saying. You
(18) are talking about my personal experience in the
(19) late '90s, I was just describing to you my
(20) personally experience, how we went through the
(21) process of determining how to – you know,
(22) which protocol to use for our system. And at
(23) the end of the day, we decided that POP just
(24) was not the right protocol to use for unified
(25) messaging system.

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(1)   Q.   Okay. But you as one of ordinary
(2) skill in the art at least considered in the
(3) late 1990s to use either POP or IMAP, correct?
(4)   A.   We considered using POP and IMAP
(5) because they were simple. You know, POP
(6) protocol was even simpler than the e-mail IMAP
(7) protocols, but it just wasn't appropriate for
(8) what we wanted to do.
(9)   Q.   Okay. And the '064 patent never makes
(10) any mention to those of skill in the art, which
(11) of these two protocols they should use to
(12) implement their e-mail server, correct?
(13)   A.   The '064 patent never specifically
(14) mentioned the term POP or IMAP. As I testified
(15) earlier, POP or IMAP are simply e-mail
(16) protocols. There are many other ways to build
(17) a unified messaging system, and the '064 patent
(18) discloses a way to use a web interface to
(19) support the message store, and that's a
(20) perfectly okay way to implement unified
(21) messaging without worrying about POP or IMAP.
(22)   Q.   Now, would you agree that as of 1999,
(23) one of ordinary skill in the art would
(24) understand POP to mean a protocol for servers
(25) on the Internet that receive, store and

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(1) transmit e-mail and for clients on computers
(2) that connect to the servers to download and
(3) upload e-mail?
(4)   A.   Could you repeat that one more time,
(5) please?
(6)   JUDGE LUCKERN: Sure. The question
(7) was: "Now, would you agree that as of 1999,
(8) one of ordinary skill in the art would
(9) understand POP to mean a protocol for servers
(10) on the Internet that receive, store and
(11) transmit e-mail and for clients on computers
(12) that connect to the servers to download and
(13) upload e-mail?"
(14)   THE WITNESS: Yes, I would.
(15)   BY MR. NELSON:
(16)   Q.   Now, if you look to the definition of
(17) unified messaging that you had, and I will give
(18) you your CDX number once I find your slides.
(19) It is CDX-274.
(20)   A.   Yes.
(21)   Q.   All right. So the agreed construction
(22) is "a system that allows messages of a
(23) data-centric network and a telephony-centric
(24) network to be received, stored, retrieved, and
(25) forwarded without regard to the communication

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(1) devices or networks employed by the
(2) transmission of the messages." Correct?
(3)   A.   Correct.
(4)   Q.   There is nothing in there that says
(5) they have to be persistently stored for as long
(6) as the user wants them there, correct?
(7)   A.   There is nothing in the construction
(8) that talks about how long a message needs to be
(9) stored in the sense that it needs to be there
(10) for two hours, two days, a month, no, that was
(11) not – that's not – that particular
(12) restriction is absent in this claim
(13) construction.
(14)   Q.   And you agree that a POP server stores
(15) e-mail messages, correct?
(16)   A.   A POP server by definition is an
(17) e-mail server. It has an ability to store
(18) e-mail messages until they are retrieved.
(19)   Q.   In fact, as we have discussed, even
(20) after they are retrieved, correct?
(21)   A.   I'm sorry, could you repeat that,
(22) please?
(23)   JUDGE LUCKERN: "In fact, as we have
(24) discussed, even after they are retrieved,
(25) correct?"

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(1)   THE WITNESS: Even after they are
(2) retrieved and – I'm sorry, what was the first
(3) part of the question?
(4)   JUDGE LUCKERN: Well, the question
(5) was: "And you agreed that a POP server stores
(6) e-mail messages, correct?
(7) "Answer: A POP server by definition
(8) is an e-mail server. It has an ability to
(9) store e-mail messages until they are retrieved.
(10) "Question: In fact, as we have
(11) discussed, even after they are retrieved,
(12) correct?"
(13)   THE WITNESS: So the POP server after
(14) the messages are retrieved, a POP, the user has
(15) option to keep the message on the server for a
(16) period of time before they are removed from the
(17) server.
(18)   BY MR. NELSON:
(19)   Q.   Now let's turn to some of your
(20) discussion on the '064 patent and let's put up
(21) CDX-256. Excuse me, not '064. I meant the
(22) Liffick patents. I apologize. Now, here on
(23) CDX-256, you were talking about your belief as
(24) to why Chestnut does not disclose current
(25) activity on the computer network, correct?

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(1)   A.   That's correct.
(2)   Q.   And here what you said is, well,
(3) Chestnut just routes calls based upon the
(4) computer at which the user is logged in,
(5) correct?
(6)   A.   Chestnut routes calls based on the
(7) most recent log-on device the user had used.
(8)   Q.   Okay. So then you don't believe that
(9) logging on to a device satisfies the language
(10) of current activity of the user on the computer
(11) network in the '439 patent, correct?
(12)   A.   I believe that logging on, logging off
(13) to a computer network is a precursor to
(14) monitoring the activity on that computer
(15) network, in other words, you have to complete
(16) the log-on step first before there can be any
(17) activity that can be monitored.
(18)   Q.   Well, and in the Chestnut patent, the
(19) calls are not routed to that computer until the
(20) log-on process is completed, correct?
(21)   A.   That's correct.
(22)   Q.   So you are not suggesting that
(23) Chestnut fails to disclose the element current
(24) activity of the user on the computer network in
(25) the '439 patent because it routes calls based

BSA   **Certain Unified Communications (O/C) No. 337-TA-598   October 15, 2007**   XMAX(103/103)

Page 1953

(1)	EXHIBIT NO:	MARKED	RECEIVED	WITHDRAWN
(2)	COMPLAINANTS			
(3)	CX-492C	1917		
(4)	CX-493C	1917		
(5)	CX-494C	1917		
(6)	CX-495C	1917		
(7)	CX-496C	1917		
(8)	CX-497C	1917		
(9)	CX-498C	1917		
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(23)	CX-514C	1917		
(24)	CX-516C	1917		
(25)	CX-520C	1917		

Page 1955

(1)	EXHIBIT NO:	MARKED	RECEIVED	WITHDRAWN
(2)	RESPONDENTS			
(3)	RX-29	1922		
(4)	RX-44	1922		
(5)	RX-45	1922		
(6)	RX-46	1922		
(7)	RX-47	1922		
(8)	RX-48	1922		
(9)	RX-50	1922		
(10)	RX-51	1922		
(11)	RX-52	1922		
(12)	RX-54	1922		
(13)	RX-57	1922		
(14)	RX-73C	1922		
(15)	RX-75C	1922		
(16)	RX-76C	1922		
(17)	RX-77C	1922		
(18)	RX-88	1922		
(19)	STAFF			
(20)	SX-12	1922		
(21)				
(22)				
(23)				
(24)				
(25)				

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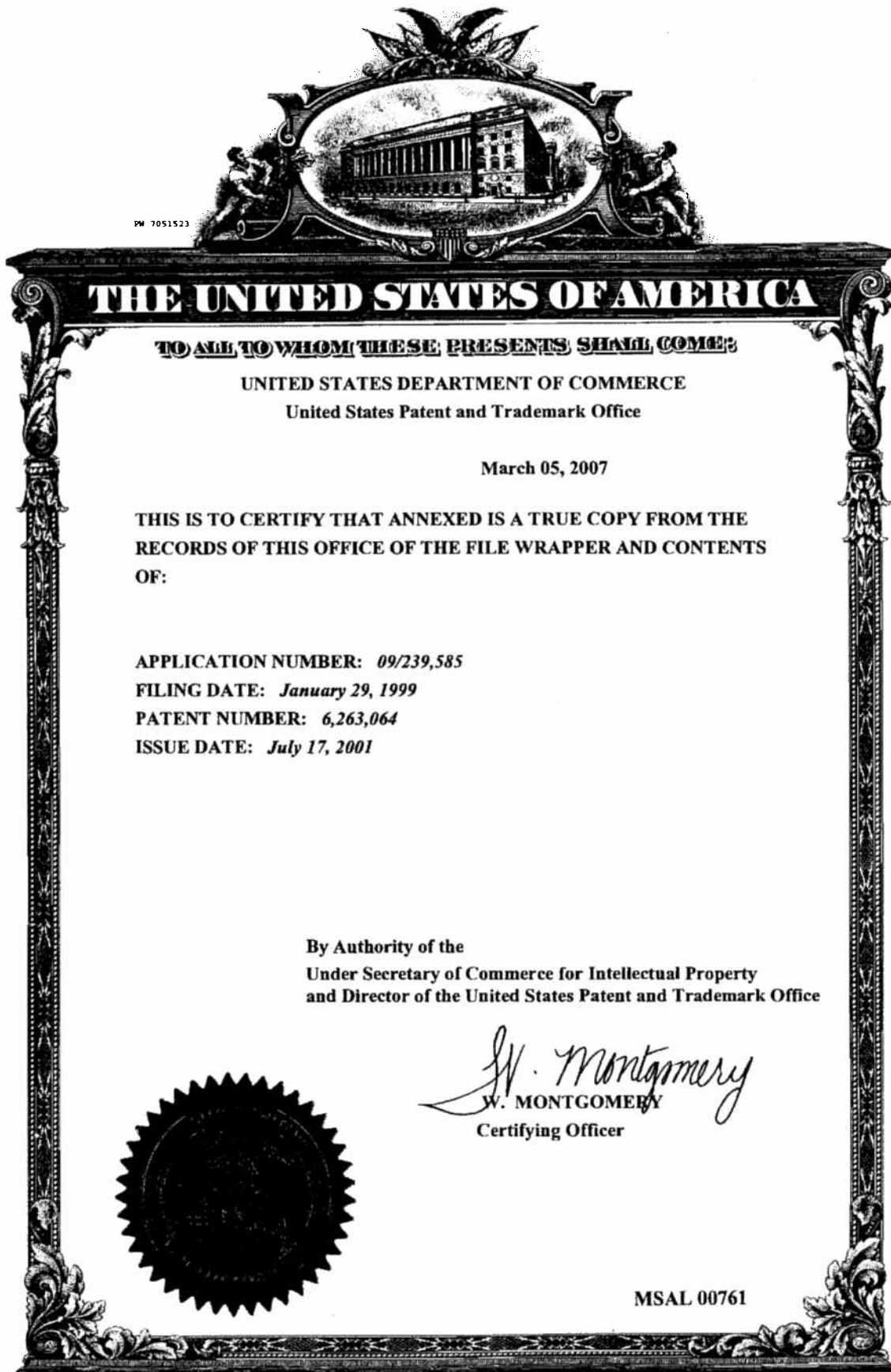| (1)	EXHIBIT NO:	MARKED	RECEIVED	WITHDRAWN
(2)	COMPLAINANTS			
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(4)	CX-578	1917		
(5)	RESPONDENTS			
(6)	RDX-2-A-16	1704		
(7)	RDX-1	1730		
(8)	RDX-2	1730		
(9)	RDX-3	1730		
(10)	RDX-4	1730		
(11)	RDX-5	1730		
(12)	RDX-6	1730		
(13)	RDX-10	1730		
(14)	RDX-11	1730		
(15)	RDX-13	1730		
(16)	RDX-14	1730		
(17)	RDX-19	1730		
(18)	RDX-20	1730		
(19)	RDX-21	1730		
(20)	RX-59	1920		
(21)	RX-87	1921		
(22)	RX-166	1921		
(23)	RX-22	1922		
(24)	RX-23	1922		
(25)	RX-28	1922		

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(1) CERTIFICATION OF TRANSCRIPTION

(2)   TITLE: Certain Unified Communications Systems
        INVESTIGATION NO: 337-TA-598

(3)   HEARING DATE: October 15, 2007
        LOCATION: Washington, D.C

(4)   NATURE OF HEARING: Hearing

(5)

        I hereby certify that the

(6)   foregoing/attached transcript is a true, correct, and
        complete record of the above-referenced proceeding(s)

(7)   of the U.S. International Trade Commission.
        DATE: October 15, 2007

(8)

        SIGNED: LASHONNE ROBINSON

(9)

        Signature of Contractor or the Authorized

(10)   Contractor's Representative
        1220 L Street, N.W, Suite 600

(11)   Washington, D.C. 20005

(12)   I hereby certify that I am not the Court
        Reporter and that I have proofread the

(13)   above-referenced transcript of the proceeding(s) of
        the U.S. International Trade Commission, against the

(14)   aforementioned Court Reporter's notes, for accuracy in
        transcription in the spelling, hyphenation,

(15)   punctuation and speaker identification, and did not
        make any changes of a substantive nature. The

(16)   foregoing/attached transcript is a true, correct, and
        accurate complete transcription of the proceeding(s).

(17)

Heritage Reporting Corporation   (202) 628-4888   SIGNED: JOHN D. LASHER   **Page 1953 to Page 1956**

EXHIBIT 10

TO

RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS

PW 7051523

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

March 05, 2007

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE
RECORDS OF THIS OFFICE OF THE FILE WRAPPER AND CONTENTS
OF:

APPLICATION NUMBER: *09/239,585*
FILING DATE: *January 29, 1999*
PATENT NUMBER: *6,263,064*
ISSUE DATE: *July 17, 2001*

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office

W. MONTGOMERY
Certifying Officer

MSAL 00761

Please **REPLACE** the original **Abstract of the Disclosure** with the following:

--A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal is disclosed. The computer implemented control center includes a subscriber communication profile database having therein an account pertaining to the subscriber. The account includes the communication options for the subscriber. The communication options include parameters associated with individual ones of the communication services and routings among the communication services. There is also included a computer server coupled to exchange data with the subscriber communication profile database. The computer server is configured to visually display the communication options on the display terminal when the subscriber employs the display terminal to access the computer-implemented control center through the data-centric network. The computer server is also configured to receive from the subscriber via the display terminal a first change to the communication options and to update the first change to the account in the subscriber communication profile database. There is also included a telephony server coupled to exchange data with the communication profile database. The telephony server is configured to audibly represent the communication options to the telephone when the subscriber employs the telephone to access the computer-implemented control center. The telephony server is also configured to receive from the subscriber via the telephone a second change to the communication options and to update the second change to the account in the subscriber communication profile database.--

In the Claims

Please **AMEND** claims 1, 2, 10, 11, 16, 17 and 20 as follows:

1. (Once Amended) A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services **through either a telephony- centric network using a telephone or a data-centric network using a display terminal**, [said communication options include parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication

- 2 -

services, said plurality of communication services comprising a voice telephone service through a telephony-centric network and an e-mail service through a data centric network, said communication options being accessible via display terminals coupled to said data-centric network and via telephones coupled to said telephony-centric network,] said computer-implemented control center comprising:

a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber, **said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services**;

a computer server coupled to exchange data with said subscriber communication profile database, said computer server being configured to **generate a single graphical menu for displaying said communication options for each of said communication services at the same time, and to** visually display said **single graphical** menu [communication options] on [one of] said display terminal[s] when said subscriber employs [said one of] said display terminal[s] to access said computer-implemented control center **through said data-centric network**, said computer server also being configured to receive from said subscriber via said [one of said] display terminal[s] **and said data-centric network** a first change to said communication options and to update said first change to said account in said subscriber communication profile database; and

a telephony server coupled to exchange data with said communication profile database, said telephony server being configured to audibly represent said communication options to [one of] said telephone[s] when said subscriber employs [said one] said telephone[s] to access said computer-implemented control center, said telephony server also being configured to receive from said subscriber via [said one of] said telephone[s] a second change to said communication options and to update said second change to said account in said subscriber communication profile database.

2. The computer-implemented control center of claim [1] 28 wherein said plurality of communication services include a facsimile service configured to permit said subscriber to receive at said unified messaging system a facsimile through said telephony-centric network and

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mail service, said communication options being accessible via display terminals coupled to [a] said data-centric network and via telephones coupled to [a] said telephony-centric network, said computer-implemented method comprising:

receiving, via either a first display terminal of said display terminals or a first telephone of said telephones, a request to access an account pertaining to said subscriber, **said account including said communication options for said subscriber**;

obtaining from a subscriber communication profile database said communication options for said subscriber in said account, **said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services**;

presenting said communication options for said subscriber on respective one of said first display terminals [and] or through said first telephone from which said request to access is received, **said communication options being visually presented in a single graphical menu arranged for displaying said communication options for each of the communication services at the same time on said first display terminal via an individualized web page associated with said subscriber or audibly presented at said first telephone**;

receiving communication setting edits from said subscriber through said respective one of said first display terminal and said first telephone from which said request to access is received, said communication setting edits pertaining to said communication options; and

modifying said communication options in accordance with said communication setting edits, wherein said communication services are subsequently controlled in accordance with said communication options after said modifying.

Please **ADD** claims 23-30 as follows:

23. The computer implemented control center of claim 1 wherein said single graphical menu comprises at least:

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a first display area for showing a first communication service, and a first communication

option associated with said first communication service; and

a second display area for showing a second communication service, and a second

communication option associated with said second communication service, the first display area

and the second display area being displayed at the same time in said single graphical menu.

24.   The computer implemented control center of claim 23 wherein the first communication

option includes a first enable option for enabling or disabling the first communication service,

and wherein the second communication option includes a second enable option for enabling or

disabling the second communication service.

25.   The computer implemented control center of claim 24 wherein the first communication

option includes a first routing option, and wherein the second communication option includes a

second routing option.

26.   The computer implemented control center of claim 25 wherein either the first routing

option or the second routing option includes a plurality of routings.

27.   The computer implemented control center of claim 23 wherein the first communication

service and the second communication service are selected from a call forwarding service, a

follow me service, an alternate number service, a message alert service, a fax receiving service or

a paging service.

28.   The computer implemented control center of claim 1 wherein said plurality of

communication services comprise an e-mail service configured to permit said subscriber to

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Three listings are included in the method: 1) associating a telephone number to a tag, 2) storing tags in a quick sequence and 3) activating a quick response (Col 3-5). The listings show the portion of interaction after the subscriber places a call to an 800-type telephone number to connect to the automated attendant and after he/she has successfully completed any login procedures to begin administering his/her personal telephone number. In the third listing, Feit states, "To turn a quick sequence or quick follow me destination on or off, press 2 (Col. 5, lines 30-31)."

Bissel discloses a method of forwarding telecommunication calls to individuals when they are away from their normal location. More particularly, a telecommunication subscriber who is traveling away from his or her home or office can have calls forwarded to a different location that is determined automatically when the subscriber engages in a transaction or activity that indicates his/her location. The transaction or activity can be any action that causes an electronic database to be updated with information that directly or indirectly is indicative of the subscriber's whereabouts, either specific or general. It is not necessary for the subscriber for the subscriber to remember to specifically to update his/her database record.

Claims 1-9 and 20-30

In contrast to Pepe, independent claims 1 and 20 of the present application require a **single graphical menu** that is arranged to display the communication options for each of the communication services **at the same time**. That is, the communication options for each of the communication services are simultaneously displayed on a computer terminal when the subscriber employs the display terminal to access the computer-implemented control center through a data-centric network. In essence, the graphical menu serves as a centralized visual interface or control panel for reviewing and/or customizing the communication options associated with various communication services. As should be appreciated, by providing a single graphical menu, a user may quickly and conveniently review the communication options and make changes thereto. Claims 1 and 20 have been amended to better clarify this aspect of the invention.

While Pepe may disclose the use of control options and subscriber profiles, Pepe does not contemplate a single graphical menu where only one view is used to display the communication options. Rather, in Pepe, the subscriber must go through a plurality of views independently,

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wherein the options are displayed at different times (See, Col. 34, Line 10 – Col. 36, Line 51 and Figures 28-45). In order to access all of the screens in Pepe, a subscriber must traverse through at least 18 screens as shown in Figures 28-45. In contrast, the present invention does not have to access multiple screens to modify options. In fact, the communication options, which are displayed on a single screen, may be modified as needed with a few keystrokes. Accordingly, it is respectfully submitted that a single graphical menu containing the communication options is neither disclosed nor reasonably suggested by Pepe et al. Furthermore, claim 20 of the present invention, as amended, additionally requires that the communication options be visually presented on a display terminal via **an individualized web page** associated with the subscriber. As should be appreciated by the Examiner, Pepe is silent to subscriber web pages.

With respect to the secondary references, it is respectfully submitted that the addition of Feit and Bissel to the Pepe patent does not cure the deficiencies of the Pepe et al. patent discussed above. It is the applicant's understanding that each of the cited references completely fails to suggest visually displaying a single graphical menu.

Therefore, for at least the reasons above, it is respectfully submitted that the art of record neither discloses nor reasonably suggests the invention as currently recited in claims 1 and 20. Accordingly, it is respectfully submitted that claims 1 and 20, as amended, are patentable over the art of record.

Claims 2-9, and 21-22 (as well as new claims 23-30) each depend either directly or indirectly from claims 1 and 20 and are therefore respectfully submitted to be patentable over the art of record for least the reasons set forth above. They also require additional elements that when considered in light of the claimed combination further patentably distinguish the present invention.

For example, claim 6 of the present invention, discloses a follow-me service, a follow me service enable option, and a set of numbers. The follow-me service enable option when enabled by the subscriber, permits "a caller" (not a subscriber) to elect to forward a call to a telephone associated with the set of telephone numbers. The follow me service gives the subscriber the ability to designate a set of telephone numbers where he/she may likely be found and gives the caller the option to try and find the subscriber (or someone who may appropriately handle the incoming call) at those numbers. From the caller's perspective, the follow me service is an on-

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Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can
be found in a prior Office action.

Claims 1-5, 9, 23, 28, and 29 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Pepe et al. (U.S. Patent No. 5,742, 905) [Hereinafter Pepe], as used
in the previous Office action, in view of Schmitz (U.S. Patent No. 5,128,871), newly
cited.

With respect to claim 1, Pepe discloses that a unified messaging computer
center (Fig. 3, Service Provider 40, col. 3, lines 45-58, and col. 4, line 29 – col. 5, line
23) permits subscribers to customize communication options pertaining to the unified
messaging service including routing (Figures 28-45). The unified messaging system
comprises a telephony-centric voice telephone service (Fig. 3, PSTN 10) and data-
centric e-mail service (Fig. 21 and col. 24, lines 54-67). A subscriber communication
profile having a subscriber account including communication options reads on the
abstract and col. 33, lines 1-3.

Pepe also discloses a subscriber may change subscriber communication profile
database options audibly (col. 11, lines 14-32 and col. 13, lines 35-67) and visually
(Figures 28-45 and col. 12, line 65 – col. 13, line 25). The "computer server" reads on
PCI Applications Server (114) (col. 8, lines 62-67) and the "telephony server" reads on
IP Function Server (130) (col. 9, lines 34-35). See also col. 9, lines 42-45.

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Pepe fails to disclose a "single graphical menu for displaying said

communication options for each of said communications services at the same time."

Instead, Pepe teaches that the interactive menu program displays the user options in a

hierarchical manner (Figs. 28-45).

Schmitz teaches of an interactive menu program that displays all user options on

one screen (col. 2, line 39). Note also that the Personal Digital Assistant (PDA) (30) as

illustrated by Pepe would appear to have ample screen space to display all the options

at the same time (see Fig. 1).

Therefore, it would have been obvious to a person of ordinary skill in the art a the

time the invention was made to add the interactive menu display of all the

communications options on a single screen as taught by Schmitz to the interactive

menu disclosed by Menu.

The suggestion/motivation for doing so would have been to simplify the user

interface (Schmitz, col. 2, line 38).

With respect to claim 2, "communication services include a facsimile service

configured to permit said subscriber to receive at said unified messaging system a
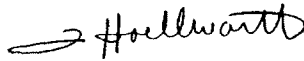
REMARKS

In the Office Action, the Examiner rejected claims 1-15, 17- 23 and 28-29 under 35 USC 103, and objected to claims 24-27 and 30 as being dependent upon a rejected base claim.

Claim 1 has been amended to include the limitations of allowed claim 24 and intervening claim 23. Claim 10 has been amended to include the limitations of allowed claim 24 and intervening claim 23, as well as the "single graphical menu" limitation found in claim 1. Claim 20 has been amended to include the limitations of allowed claim 30. Claim 32 is a new claim incorporating the limitations of claim 1 and allowed claim 30. Claim 37 is a new claim incorporating the limitations of claim 1, allowed claim 23 and intervening claim 27. In addition, claims 11, 17, 23, 24, 25, 27 and 30 have been amended to correct minor informalities and to further clarify the subject matter regarded as the invention (as set forth in independent claims 1 and 10). Claim 31 has been added to reinstate canceled claim 16. Moreover, claims 33-36 have been added to further clarify the subject matter regarded as the invention (as set forth in independent claim 32). Accordingly, claims 1-15 and 17-37 are pending in the application. In addition, claims 1-15 and 17-37 are now in a condition for allowance. Reconsideration of the application and a Notice of Allowance are earnestly solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned attorney/agent at the telephone number listed below.

Respectfully submitted,

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	EXAMINER

ART UNIT	PAPER NUMBER
2645	10

DATE MAILED:
01/03/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

PTO-90C (Rev. 2/95)
*U.S. GPO: 2000-473-000/44602

1- File Copy

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Art Unit: 2645

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

The prior art of record fails to disclose or render obvious, alone or in combination,

claims 1-9, 20-22, 25-30, 32, and 37.

ndent claim 1 is directed to permitting a subscriber of a unified

messa᷄   omize communication options. Specifically, the prior art of

record   ied messaging system having the following combination of

additional features:

1)   a subscriber communications profile database.

2)   a computer server with a graphical display that displays a single graphical

menu comprising a first display area for showing a first communication

service and a first enable/disable option and a second display showing a

second communication and a second enable/disable option where the first

and second display area are displayed at the same time.

3)   a telephony server that audibly represents said communication options to

a telephone.

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Art Unit: 2645

The subject independent claims 20 and 32 are also directed to permitting a

subscriber of a unified messaging system to customize communication options.

Specifically, the prior art of record fails to teach a unified messaging system having the

following combination of additional features:

1)   a subscriber communications profile database.

2)   a computer server with a graphical display that displays a single graphical

       menu allowing the subscriber to select communications options: a) an on-

       demand communications enable option where the on-demand

       communication service permits a subscriber to the unified messaging

       system to forward a call or message to a forwarding number, and b) a

       forwarding number associated with the on-demand

       communication service.

3)   a telephony server that audibly represents said communication options to

       a telephone.

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Art Unit: 2645

The subject independent claim 37 is also directed to permitting a subscriber of a

of a unified messaging system to customize communication options. Specifically, the

prior art of record fails to teach a unified messaging system having the following

combination of additional features:

1)   a subscriber communications profile database.

2)   a computer server with a graphical display that displays a single graphical

      menu comprising a first display area for showing a first communication

      service and an option and a second display showing a

      second communication and an option where the first and second display

      area are displayed at the same time.

4)   where the first communication service and second communication service

      are selected from a call forwarding service, a follow me service, an

      alternate number service, a message alert service, a fax receiving service,

      or a paging service.

5)   a telephony server that audibly represents said communication options to

      a telephone.

The previously applied prior art of record, Pepe et al. (U.S. Patent No. 5,742,905)

is the closest prior art of record. Pepe discloses a unified messaging system having a

subscriber communications profile database, a computer server with a graphical

display, and a telephony server that audibly represents communication options to a

EXHIBIT 11

FULLY REDACTED

EXHIBIT 12

TO

RESPONSIVE CLAIM CONSTRUCTION BRIEF OF DEFENDANTS ALCATEL-LUCENT ENTERPRISE AND GENESYS

Certain Unified Communications No. 337-TA-598   **October 12, 2007**

Heritage Reporting Corporation

Page 1155 to Page 1544

CONDENSED TRANSCRIPT AND CONCORDANCE
PREPARED BY:

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(1) POP mail store, which I have to log on to with a
(2) user name and password. And then, when I send a
(3) message from my laptop, it will be sent using the
(4) other protocol that is mentioned here, SMTP, to
(5) someone else's mailbox.
(6)   Q   So the POP, was that some kind of
(7) standard back in 1998 –
(8)   A   Sure.
(9)   Q   – when the –
(10)   JUDGE LUCKERN: Let him finish his
(11) question. Finish your question.
(12)   MR. NELSON: Sorry. I'm a little slow
(13) sometimes with my question.
(14)   JUDGE LUCKERN: So the POP, was that
(15) some kind of standard back in 1998 – well, when
(16) the – sure. What was your total question?
(17)   MR. NELSON: I'll start –
(18)   BY MR. NELSON:
(19)   Q   So was the POP some kind of standard
(20) back in March of 1998 when the Swartz patent was
(21) filed?
(22)   A   Yes. I think the POP and SMTP standards
(23) had been established probably at least a decade
(24) earlier by the Internet Engineering Task Force,
(25) IETF, which was a standard setting body for things

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(1) like this, for protocols used on the Internet.
(2)   Q   Did you have any experience in
(3) connection with that Octel Unified Messenger
(4) product that you described earlier working with
(5) some kind of POP server?
(6)   A   Sure. Yeah. We implemented message
(7) exchange to POP and SMTP, as well as Microsoft
(8) Exchange and Lotus Notes.
(9)   Q   Did that system allow you to retrieve
(10) your E-mails then?
(11)   A   Yeah.
(12)   Q   Now, is there – go back to the RDX-3,
(13) page 2. And the next issue there is whether
(14) Swartz discloses a telephony server coupled to
(15) exchange data with said communication profile
(16) database. Do you see that?
(17)   A   Yes.
(18)   Q   And do you have an opinion as to whether
(19) the Swartz reference, RX-5, discloses a telephony
(20) server?
(21)   A   Yes. In the next slide, we talk about
(22) that.
(23)   Q   Well, can you tell me what the basis for
(24) that opinion is?
(25)   A   Well, various points in his description

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(1) of his invention, he talks about –
(2)   Q   And just so the record is clear, right
(3) now you're referring to RDX-3, page 8; is that
(4) correct?
(5)   A   Yes.
(6)   JUDGE LUCKERN: Thank you, Mr. Nelson.
(7) Go ahead, Mr. Hyde-Thomson.
(8)   THE WITNESS: In the top right of this
(9) picture, in fig 1, is a box called the host
(10) services computer. And to its left is another box
(11) called the multiport A/D I/O – it's A/D I/O –
(12) which connects to the dial up telephone system.
(13)   MR. CORDELL: Your Honor, I want to
(14) renew my objection. I move to strike. It's
(15) outside the expert report.
(16)   JUDGE LUCKERN: All right. How do you
(17) want to respond, Mr. Nelson?
(18)   MR. NELSON: Yes. Mr. Hyde-Thomson
(19) opined in his expert report that the Swartz
(20) reference discloses all of the limitations of the
(21) asserted claims. He set those things out. They
(22) had the opportunity to depose him on these things,
(23) had a rebuttal report on these things.
(24) So, you know, I don't – I don't know
(25) what else to say.

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(1)   JUDGE LUCKERN: Anything new,
(2) Mr. Cordell, you want to say before I hear the
(3) position of the staff with respect to the motion
(4) to strike?
(5)   MR. CORDELL: Nothing, Your Honor, other
(6) than he didn't disclose any telephony server in
(7) his expert report, so there's no reason for us to
(8) depose him. He did disclose a TUI. But he did
(9) not disclose a telephony server.
(10)   JUDGE LUCKERN: Anything new you want to
(11) say, Mr. Nelson, before I hear the position of the
(12) staff?
(13)   MR. NELSON: No, Your Honor. He opined
(14) on all of the elements. So I don't think the
(15) objection is valid.
(16)   JUDGE LUCKERN: All right. Mr. Lloyd.
(17) It's actually to strike. But in any event, what's
(18) your position, Mr. Lloyd, on the motion to strike?
(19)   MR. LLOYD: I still remember all of the
(20) elements of this being listed. I mean, again, if
(21) Mr. Cordell is saying it's not there, I mean, the
(22) thing to do is put the claim chart up and see if
(23) it's there. So I mean in the absence of – my
(24) memory is he had a claim chart and all the
(25) elements were listed on the claim chart. So as

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(12)

(13)

(14)

(15)

(16)

(17)

(18)

(19)

(20)

(21)

(22)

(23)

(24)

(25)

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(1) CERTIFICATION OF TRANSCRIPTION

(2)   TITLE: Certain Unified Communications Systems

         INVESTIGATION NO: 337-TA-598

(3) HEARING DATE: October 12, 2007

         LOCATION: Washington, D.C

(4) NATURE OF HEARING: Hearing

(5)

     I hereby certify that the

(6) foregoing/attached transcript is a true, correct, and

         complete record of the above-referenced proceeding(s)

(7) of the U.S. International Trade Commission.

         DATE: October 12, 2007

(8)

         SIGNED: LASHONNE ROBINSON

(9)

     Signature of Contractor or the Authorized

(10) Contractor's Representative

         1220 L Street, N.W, Suite 600

(11) Washington, D.C. 20005

(12) I hereby certify that I am not the Court

         Reporter and that I have proofread the

(13) above-referenced transcript of the proceeding(s) of

         the U.S. International Trade Commission, against the

(14) aforementioned Court Reporter's notes, for accuracy in

         transcription in the spelling, hyphenation,

(15) punctuation and speaker identification, and did not

         make any changes of a substantive nature. The

(16) foregoing/attached transcript is a true, correct, and

         accurate complete transcription of the proceeding(s).

(17)

EXHIBIT 13

FULLY REDACTED

EXHIBIT 14

FULLY REDACTED

EXHIBIT 15

FULLY REDACTED